











No. 1

January 1899—

—No. 4



**Journal**  
of the  
**Royal Naval Medical Service**

EDITED BY

STURGEON COMMANDER W. L. MARTIN, R.N.

PUBLISHED QUARTERLY.

Price 4s.—No. 1 & 2 single copies 2s. 6d.—all payments accepted in the advance.

PRINTED BY TAYLOR AND FRANCIS, LTD.

41, ABLE ROAD, ROBINSON ROAD, SINGAPORE.

PRINTED BY

10, A GREAT LONDON STREET, LONDON, E.C. 4.

PRICE SIX SHILLINGS NET

Electricity

# BAIRD & TATLOCK (LONDON), LTD.

14, Cross Street, London, E.C. 1.

MANUFACTURERS OF  
All kinds of Bacteriological Apparatus.



Agglutination Water Bath.

Control-Strain Test Apparatus.

Model No. 1, 1921/22.

## DUROGLASS.

A high resistance Borosilicate Laboratory Glassware.

(Sunderland and New York.)

See BBD Supplementary Catalogue.

# Journal of the Royal Naval Medical Service.

JANUARY, 1919.

## TABLE OF CONTENTS.

### ORIGINAL ARTICLES.—

Medical Insurgements in H.M.S. "Heddon" on April 20-22, 1918 By Surgeon Commandant J. MacDonnell, R.N.	1
Concerning Aspiration. By THOMAS BARNES, Lieutenant A. Macdonnell M.B., B.S.	11
The Treatment of Gonorrhoea and its Complications by Colloid Magnesia and Iodoform. By THOMAS BARNES, Lieutenant A. Macdonnell M.B., B.S.	41
The Ship's Water Supply. By Surgeon Commandant T. B. Scott, M.B., B.S.	18
The Royal Naval Academy Hospital, Falmouth. By Surgeon Lieut. Commandant T. B. Scott, M.B., F.R.C.S., R.N.V.R.	73

### CLINICAL AND PRACTICAL NOTES.—

Intermittent Irrigation of Hand in Infected Wound. By Surgeon, R.N.V.R. Commandant J. A. Macdonnell, Lieutenant A. Macdonnell, M.B., B.S.	21
Infected Wound in the Hand. By Surgeon Commandant J. A. Macdonnell, M.B., B.S.	22
Wound in the Hand. By Surgeon Commandant J. A. Macdonnell, M.B., B.S.	23
A Case of Gonorrhoea in the Hand. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B., B.S.	24
Acute Otitis Media following Mumps Infection. By THOMAS BARNES, Lieutenant A. Macdonnell, M.B.	26
Tonsillitis and Acute Otitis. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B.	29
Perforation of the Right Cardiac Ventricle. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B., B.S.	101
A Case of Perforation of the Right Cardiac Ventricle. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B., B.S.	102
A Case of Perforation of the Right Cardiac Ventricle. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B., B.S.	103
Gonorrhoea and a Medical Report. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B.	104
A Case of Gonorrhoea in the Hand. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B., B.S.	105
Suggestion for the Improvement of Naval Hospitals in a Distant Ship. By Surgeon Lieut. Commandant J. A. Macdonnell, M.B.	106

### REVIEWS.

113

### NEWS OF THE SERVICE.—

Obituary	121
Obituary	122
Obituary	123
Obituary	124
Obituary	125
Obituary	126
Obituary	127

We reprint below a communication published (with other reports dealing with Influenza) by *The Lancet* 9th December, 1918, page 884, under the title

## "THE TREATMENT OF INFLUENZA."

"We —, WHO, writes that having proved the antiseptic properties of garlic in his treatment of gonorrhoea he decided to try a non-official regimen, then known as trisublimed ethyle sulphide compound in the treatment of influenza. Before adopting this preparation 40 consecutive cases, with the exception of two he has had no serious complications, as no case has the temperature remained up over 40 hours, and in many instances a normal temperature has been regained in 24 hours, patients feeling easy and drinking food. Of the two exceptions one was a case of pulmonary tuberculosis and the other had severe gastric symptoms. Before adopting the preparation high temperatures persisted in most cases for 3-4 days, accompanied by severe bronchial catarrh and in some instances pneumonia."

"Trisublimed ethyle sulphide compound prepared by the process of precipitation under the name of 'Taron' (Auerbach) has proved specific against Influenza. It has cured influenza large numbers of similar reports, proven and verified. The Medical Practitioner in all parts of the country. 'Taron' Auerbach provides a reliable agent for checking the present epidemic and dealing with any influenza epidemic. 'Taron' is not toxic, non-irritant, non-poisonous, and safe. The Medical Practitioner is no longer worried by the possible harmful effects consequent on the direct use. He is able to adopt a rational method of proceeding any variety of remedial measures on the system, by the use of a safe and antiseptic. With 'Taron' Auerbach has found of any influenza disease or influenza conditions can begin at first indication of disorder, without awaiting first the symptoms. It is superior to Quinine and Salicylate. Temperature reduced to normal in 24 to 36 hours."

"Taron Auerbach has been used in Hospital and Medical Practice for two years. Owing to scarcity of raw materials, we regret being unable to send free samples. Literature and Bacteriological Report sent on request."

"Taron Auerbach can be obtained from Chemists, every branch of Messrs. F. & J. Barry, Messrs. J. & J. Barry, Messrs. J. & J. Barry, or from usual sources of supply."

*Safe Preparation and Non-poisonous*

**CLEMENT & JOHNSON 19, St. John Avenue, London, W.C. 1.**

Telephone: CLEMENTS, LONDON.

Telephone: GUY 874.

ALLEN & HANBURY'S LIMITED LONDON

WYNDHAM POWELL'S  
**Aero Operating Urethroscope**

*Latest Pattern*



Made under the supervision of  
MR. WYNDHAM POWELL

*Description complete on application*

**ALLEN & HANBURY'S Ltd.,**  
MANUFACTURERS OF MEDICAL INSTRUMENTS AND APPLIANCES  
48, Wigmore Street, London, W. 1.

# Advances in Treatment

We make a specialty of the preparation of solutions for hypodermic injection. The following are selected from our complete list, which covers most of the demands on this, and will be made on application.

**"Azoale" "Pitibalin"** 1 gram "Azoale" 100 ccs. dist. 1 cc. "Pitibalin" 100 ccs. dist.  
 1 cc. 100 ccs. dist.

A highly active, slightly caustic, irritant and stimulant for local solution of all cutaneous and venous diseases.

**"Azoale" "Alepon"** 1 gram "Azoale" 100 ccs. dist. 1 cc. "Alepon" 100 ccs. dist.  
 1 cc. 100 ccs. dist.

A solution of the hypodermic oil of the natural alkaloids of opium used in a solution and injection.

**"Azoale" Emetine.** 1 gram "Azoale" 100 ccs. dist. 1 cc. "Emetine" 100 ccs. dist.  
 1 cc. 100 ccs. dist.  
 For use in the treatment of Acute Dysentery.


**"Azoale" Quinine Bihydrochloride.**  
 1 gram 100 ccs. dist.

1 gram "Azoale" 100 ccs. dist. 1 cc. "Quinine Bihydrochloride" 100 ccs. dist.

For intravenous injection in the treatment of malaria.

**"Azoale" Camphor.** 1 gram "Azoale" 100 ccs. dist. 1 cc. "Camphor" 100 ccs. dist.  
 1 cc. 100 ccs. dist.

A solution of camphor and oil of cedar used in injection. Lancing acute furuncles and abscesses.

 Use the distinctive word "Azoale" to signify absolute glass capsules of Allen & Hanburys' camphor.

**Allen & Hanburys Ltd., London.**

4th Floor, 117 Lombard Street, E.C. 3. 7th Floor, 117, Cannon Street, W. 1.



# LA CORONA HALF-A-CORONA



**L**A CORONA HALF-A-CORONA  
Cigars are the finest small Cigar  
shipped from Havana. They can be ob-  
tained wherever fine Cigars are marketed  
at 50¢ per 100 or \$2.50 per sample box  
of 25.

If any difficulty  
in obtaining  
specimens with

MILLERSON,  
HART & CO.,  
11 Broadway St.  
London, E.C. 3



Special Daily Free press  
to Nevada Miners.  
75¢ per 100 or \$2.50 in limited  
quantity \$1.00 per 100 in  
boxes of 50.

# The COOLIDGE X-Ray Tube

1. I have 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840,

North House 77 West Towne House, London, U.K.

## Physical and Occupational Re-Education of the Maimed

© 2000 by John Wiley & Sons, Inc. All rights reserved. This publication is intended to provide accurate and authoritative information in regard to the subject matter covered. It is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional service. If legal advice or other expert assistance is required, the services of a competent professional person should be sought.

SUBITOL

### PROPERLY REPLACES LIGHTBULB

is built around the idea, not often fully shared by its practitioners, that the world is perceived best

© 2012 Blackwell Publishing Ltd *Journal of Internal Medicine* 272: 103–112

[illegible]



SUNIC



## FURTHER APPRECIATION OF SUNIC X-RAY PLATES



SUNIC

**English Text:**

Dear Sirs,

I am very pleased to hear that you are using SUNIC X-RAY PLATES and that you are satisfied with the results.

I am sure that you will find them to be of great value in your work.

Yours faithfully,

**Watson & Sons**

**French Text:**

Monsieur,

J'ai le plaisir de vous remercier pour l'intérêt que vous portez à nos plaques SUNIC.

Je suis sûr que vous les trouverez très utiles dans votre travail.

Très respectueusement,

**Watson & Sons**

**WATSON & SONS**  
ELECTRO-METALLIC LTD.  
SUNIC HOUSE, PARKER STREET, KINGSWAY,  
LONDON, W.C.2.  
Tele. 2, 3 and 4. Cable: "Watson & Sons"

Telephone and Cable: "Watson & Sons" 2, 3 and 4

Telephone: "Watson & Sons" 2, 3 and 4

## CORY BROS.

(Surgical Instrument Makers)  
LIMITED.



Fig. 1. Retractor for the head and neck.

Manufacturers of Hospital and  
General Veterinary Surgical Instruments.  
Sheffield, Glasgow, Dublin,  
London, Manchester, etc.

SOLE AGENTS: MESSRS. J. & F. HORTON  
211, Strand, London, W.C.2. (Opposite the Strand Palace Hotel)

Address: 54 & 56, HORTON ST., LONDON, W. 1.  
(Opposite the Strand Palace Hotel)



Fig. 2. Forceps for the head and neck.



Fig. 3. Forceps for the head and neck.



Fig. 4. Forceps for the head and neck.



Fig. 5. Forceps for the head and neck.

[illegible]

## THE NON-IRRITANT LOCAL ANÆSTHETIC

NOVOCAIN

[illegible]

The original presentation of MORTGAGE  
is supplied for the past 12 years and  
may be obtained in the following manner:

THE SACCALAM CORPORATION LTD.

24-25, Queen Street, Chislehurst, London, E.C. 4.  
 Daily Deal: The Pioneer, Chislehurst, E.C. 4. (01-883 3333).

**ACKNOWLEDGMENTS**

**Page 10/10**  
 10/10  
 10/10  
 10/10  
 10/10  
 10/10  
 10/10

1. **Introduction**  
 2. **Methodology**  
 3. **Results**  
 4. **Discussion**  
 5. **Conclusion**  
 6. **References**  
 7. **Appendix**  
 8. **Index**  
 9. **Table of Contents**  
 10. **Figure 1**  
 11. **Figure 2**  
 12. **Figure 3**  
 13. **Figure 4**  
 14. **Figure 5**  
 15. **Figure 6**  
 16. **Figure 7**  
 17. **Figure 8**  
 18. **Figure 9**  
 19. **Figure 10**  
 20. **Figure 11**  
 21. **Figure 12**  
 22. **Figure 13**  
 23. **Figure 14**  
 24. **Figure 15**  
 25. **Figure 16**  
 26. **Figure 17**  
 27. **Figure 18**  
 28. **Figure 19**  
 29. **Figure 20**  
 30. **Figure 21**  
 31. **Figure 22**  
 32. **Figure 23**  
 33. **Figure 24**  
 34. **Figure 25**  
 35. **Figure 26**  
 36. **Figure 27**  
 37. **Figure 28**  
 38. **Figure 29**  
 39. **Figure 30**  
 40. **Figure 31**  
 41. **Figure 32**  
 42. **Figure 33**  
 43. **Figure 34**  
 44. **Figure 35**  
 45. **Figure 36**  
 46. **Figure 37**  
 47. **Figure 38**  
 48. **Figure 39**  
 49. **Figure 40**  
 50. **Figure 41**  
 51. **Figure 42**  
 52. **Figure 43**  
 53. **Figure 44**  
 54. **Figure 45**  
 55. **Figure 46**  
 56. **Figure 47**  
 57. **Figure 48**  
 58. **Figure 49**  
 59. **Figure 50**  
 60. **Figure 51**  
 61. **Figure 52**  
 62. **Figure 53**  
 63. **Figure 54**  
 64. **Figure 55**  
 65. **Figure 56**  
 66. **Figure 57**  
 67. **Figure 58**  
 68. **Figure 59**  
 69. **Figure 60**  
 70. **Figure 61**  
 71. **Figure 62**  
 72. **Figure 63**  
 73. **Figure 64**  
 74. **Figure 65**  
 75. **Figure 66**  
 76. **Figure 67**  
 77. **Figure 68**  
 78. **Figure 69**  
 79. **Figure 70**  
 80. **Figure 71**  
 81. **Figure 72**  
 82. **Figure 73**  
 83. **Figure 74**  
 84. **Figure 75**  
 85. **Figure 76**  
 86. **Figure 77**  
 87. **Figure 78**  
 88. **Figure 79**  
 89. **Figure 80**  
 90. **Figure 81**  
 91. **Figure 82**  
 92. **Figure 83**  
 93. **Figure 84**  
 94. **Figure 85**  
 95. **Figure 86**  
 96. **Figure 87**  
 97. **Figure 88**  
 98. **Figure 89**  
 99. **Figure 90**  
 100. **Figure 91**  
 101. **Figure 92**  
 102. **Figure 93**  
 103. **Figure 94**  
 104. **Figure 95**  
 105. **Figure 96**  
 106. **Figure 97**  
 107. **Figure 98**  
 108. **Figure 99**  
 109. **Figure 100**  
 110. **Figure 101**  
 111. **Figure 102**  
 112. **Figure 103**  
 113. **Figure 104**  
 114. **Figure 105**  
 115. **Figure 106**  
 116. **Figure 107**  
 117. **Figure 108**  
 118. **Figure 109**  
 119. **Figure 110**  
 120. **Figure 111**  
 121. **Figure 112**  
 122. **Figure 113**  
 123. **Figure 114**  
 124. **Figure 115**  
 125. **Figure 116**  
 126. **Figure 117**  
 127. **Figure 118**  
 128. **Figure 119**  
 129. **Figure 120**  
 130. **Figure 121**  
 131. **Figure 122**  
 132. **Figure 123**  
 133. **Figure 124**  
 134. **Figure 125**  
 135. **Figure 126**  
 136. **Figure 127**  
 137. **Figure 128**  
 138. **Figure 129**  
 139. **Figure 130**  
 140. **Figure 131**  
 141. **Figure 132**  
 142. **Figure 133**  
 143. **Figure 134**  
 144. **Figure 135**  
 145. **Figure 136**  
 146. **Figure 137**  
 147. **Figure 138**  
 148. **Figure 139**  
 149. **Figure 140**  
 150. **Figure 141**  
 151. **Figure 142**  
 152. **Figure 143**  
 153. **Figure 144**  
 154. **Figure 145**  
 155. **Figure 146**  
 156. **Figure 147**  
 157. **Figure 148**  
 158. **Figure 149**  
 159. **Figure 150**  
 160. **Figure 151**  
 161. **Figure 152**  
 162. **Figure 153**  
 163. **Figure 154**  
 164. **Figure 155**  
 165. **Figure 156**  
 166. **Figure 157**  
 167. **Figure 158**  
 168. **Figure 159**  
 169. **Figure 160**  
 170. **Figure 161**  
 171. **Figure 162**  
 172. **Figure 163**  
 173. **Figure 164**  
 174. **Figure 165**  
 175. **Figure 166**  
 176. **Figure 167**  
 177. **Figure 168**  
 178. **Figure 169**  
 179. **Figure 170**  
 180. **Figure 171**  
 181. **Figure 172**  
 182. **Figure 173**  
 183. **Figure 174**  
 184. **Figure 175**  
 185. **Figure 176**  
 186. **Figure 177**  
 187. **Figure 178**  
 188. **Figure 179**  
 189. **Figure 180**  
 190. **Figure 181**  
 191. **Figure 182**  
 192. **Figure 183**  
 193. **Figure 184**  
 194. **Figure 185**  
 195. **Figure 186**  
 196. **Figure 187**  
 197. **Figure 188**  
 198. **Figure 189**  
 199. **Figure 190**  
 200. **Figure 191**  
 201. **Figure 192**  
 202. **Figure 193**  
 203. **Figure 194**  
 204. **Figure 195**  
 205. **Figure 196**  
 206. **Figure 197**  
 207. **Figure 198**  
 208. **Figure 199**  
 209. **Figure 200**  
 210. **Figure 201**  
 211. **Figure 202**  
 212. **Figure 203**  
 213. **Figure 204**  
 214. **Figure 205**  
 215. **Figure 206**  
 216. **Figure 207**  
 217. **Figure 208**

# LEWIS'S PUBLICATIONS.

25, Abchurch Lane, London, E.C. 4. Telephone: 4000. Telegrams: "Lewis's," London. Cable: "Lewis's," London.

## THE ACTION OF MUSCLES,

By LEWIS JONES, M.D., F.R.C.S., and JAMES H. HARRIS, M.D., F.R.C.S. (Edinburgh). With 100 illustrations. 1911. 10s. 6d. (net).  
 A practical treatise on the action of muscles, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

NEW EDITION. 1911. 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net).

## LEWIS JONES' MEDICAL ELECTRICITY

A PRACTICAL TREATISE ON THE ACTION OF ELECTRICITY ON THE HUMAN BODY.

By LEWIS JONES, M.D., F.R.C.S., and JAMES H. HARRIS, M.D., F.R.C.S. (Edinburgh). With 100 illustrations. 1911. 10s. 6d. (net).  
 A practical treatise on the action of electricity on the human body, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

NEW EDITION. 1911. 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net).

## LOCALISATION OF GRAVE AND HYPERTROPHY

By LEWIS JONES, M.D., F.R.C.S., and JAMES H. HARRIS, M.D., F.R.C.S. (Edinburgh). With 100 illustrations. 1911. 10s. 6d. (net).  
 A practical treatise on the localisation of grave and hypertrophy, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

NEW EDITION. 1911. 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net).

## THE SYSTEMIC EFFECTS OF CONSUMPTION

By LEWIS JONES, M.D., F.R.C.S., and JAMES H. HARRIS, M.D., F.R.C.S. (Edinburgh). With 100 illustrations. 1911. 10s. 6d. (net).

A practical treatise on the systemic effects of consumption, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

NEW EDITION. 1911. 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net). 10s. 6d. (net).

A practical treatise on the systemic effects of consumption, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

A practical treatise on the systemic effects of consumption, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

A practical treatise on the systemic effects of consumption, and the diseases of the muscles, and the treatment of the same. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one. It is a practical treatise, and not a theoretical one.

Gold Medal, Diploma of Honour, Grand Prix.

Member of the Jury and Vice-Chairman at International Exhibitions.

The French Académie

Scientist for Germany.

Pharmaceutical Institute, Berlin. Toxicology Courses. — Hemostatic.

# AMYCAINE

CHLORIDE OF AMYCAINE.

Painless and Safe.

Powerful

Swift and Lasting.

Painless

HEMOSTATIC.

Antiseptic

UNAFFECTED EITHER BY HEAT OR LIGHT.  
 FOR GENERAL AND LOCAL ANÆSTHESIA.

Sole Agents for Great Britain: Messrs. The London and Globe Dispensary.

25, Abchurch Lane, London, E.C. 4. Telephone: 4000. Telegrams: "Lewis's," London. Cable: "Lewis's," London.

(LONDON: 4000-4001)

NEWEST DISCOVERY. — PAINLESS — LASTING

Sample and Literature on Application

## Dental Equipment for Army, Navy, Hospital, Clinic, Private Practice.



Illustrating the use of the "Universal Chair" (shown in the left, pattern No. 1000).

## The Dental Manufacturing Co Ltd

ALSTON HOUSE  
MANCHESTER  
LONDON W.C.2

Represent: Manchester, Newcastle, Leeds, Glasgow, Dublin, New York, Montreal

### During Convalescence.

JARDOX is a valuable food because it gives a low grade food material in a form easily assimilated and most convenient for the rebuilding of the weak nerves and tissues.

It is a food of the highest quality, and is easily assimilated by the weak and the old. It is a food of the highest quality, and is easily assimilated by the weak and the old. It is a food of the highest quality, and is easily assimilated by the weak and the old.

**JARDOX**

For Food and for Flavor  
in the most palatable form.

Prepared by the  
Dental Manufacturing Co. Ltd., London

The Food of the Future

# BENGER'S

## Food

For INFANTS,  
INVALIDS and the AGED

It gives strength and adds to the vitality of the body. It is a food of the highest quality, and is easily assimilated by the weak and the old. It is a food of the highest quality, and is easily assimilated by the weak and the old.

**YAN, ALEXANDER & Co.,**  
THE  
ADVERTISEMENT AGENTS  
FOR  
MEDICAL AND NURSING  
JOURNALS

11, Cannon Street, W.C.2  
Telephone: CENTRAL 400

# CURTIS ABDOMINAL SUPPORT



## TO THE LADIES

For one of the  
dozen of women  
and many of the  
youngest women  
there is a most  
helpful



It will assist in making internal organs firm and expedite  
reconstruction.

The only absolute Abdominal support which cannot  
possibly be pushed off, stuck, and with the least discomfort  
be taken off.

Illustrations of the Physique are in outline and in color, showing the

**WATSON & CURTIS, Ltd (Printers), Edinburgh, Specialists**

Designers & Constructors of all kinds of Mechanical Appliances  
100, N. COLLEGE ST. GLASGOW, 1.



## A NEW Metal Tourniquet.

Price 4/6 (including Tax).

### ADVANTAGES

- Ease of application.
- Does not complicate, or obstruct, use of  
medical force.
- Accuracy of adjustment, no danger of  
over-tightening and possible injury to limb.
- Uncomplicated—no need for the 3 or 4 different  
bands now used.
- Perfectly smooth surface.

ALBERT JAMES BERNARD, ESQ., F.R.C.S.,  
100, N. COLLEGE ST., GLASGOW, 1.

For further particulars of this new Metal Tourniquet,  
which is a complete and perfect design, and is  
uncomplicated—no need for the 3 or 4 different  
bands now used—write to the undersigned,  
100, N. COLLEGE ST., GLASGOW, 1.

Write for Particulars  
to the Sole Agents—

**JOHNSON AND PHILLIPS [L]**  
CHARLTON, LONDON S.E. 4.

# MORE THAN A POULTICE

## MOIST HEAT

PLUS

## HYGROSCOPIC—ANTISEPTIC OSMOTIC ACTION

---

One unique feature about Antiphlogistine as compared to all other applications of moist heat, is its hygroscopic and osmotic power—the power to take into itself the products of inflammation.

Another peculiar feature about Antiphlogistine is its marked thermal property. When the watery acids from an inflamed area come in contact with hygroscopic glycerine, as contained in Antiphlogistine, heat is produced. As long as there is contact areas there is bound to be the resultant heat. Hence an application of Antiphlogistine may remain warm for 24 hours or even longer.

# *Antiphlogistine*

is indicated whenever and wherever inflammation plays a part.

---

THE DENVER CHEMICAL MFG. COMPANY

NEW LONDON E. I.

# NOVARSENOBILLON

For Inflammation or Inflammatory Infection  
in the Treatment of

*Syphilis, Recurrent Fever*  
AND OTHER SPIROCHETAL INFECTIONS

Novarsenobillon in my trials has proved a safe and  
new efficient remedy against the primary stages of  
the Venereal disease — It cures all Lympho-adenitis  
and Tender of the Glands of the Cervical Venous System.  
For further facts apply to—

Manufactured by CHAS. BAKER, 100, Abchurch Lane, LONDON, E.C. 4.

Consultant and Analysts: CHAS. BAKER, 100, Abchurch Lane, LONDON, E.C. 4.

**MAY & BAKER, LTD.,** Manufacturing Chemists  
BATTERSEA, LONDON, S.W. 17

Office in London: 100, Abchurch Lane, E.C. 4.  
Telephone: 4000.

Telephone: 4000. 100, Abchurch Lane, E.C. 4.

## A. E. BRAID & CO., Ltd.

30, GOWER PLACE, GOWER ST., LONDON, W.C.1.

Established in 1880. 100, Abchurch Lane, E.C. 4.

Sole Agents for the  
"STERLING" Rubber Gloves.



Manufactured  
in  
Canada



SOLE AGENTS FOR THE  
"STERLING" RUBBER GLOVES

SOLE AGENTS, LONDON: 100, Abchurch Lane, E.C. 4.

SOLE AGENTS, LONDON: 100, Abchurch Lane, E.C. 4.

SOLE AGENTS, LONDON: 100, Abchurch Lane, E.C. 4.

SOLE AGENTS, LONDON: 100, Abchurch Lane, E.C. 4.

Sole Agents for the "STERLING" RUBBER GLOVES

ALL SECTIONS of the body fluids and tissues are COLLOSOLO.

Collosoles are given with water and food, without restriction, except in the case of infants with diarrhoea of the body.



Collosole can be used by all persons, without restriction, except in the case of infants with diarrhoea.

The following COLLOSOLES have now been adopted by Government practitioners and in the hospitals.—

#### COLLOSOLO IODINE.

Given in any form in the most severe conditions. In all cases in which iodine was wanted, and which the ordinary iodine preparations failed to relieve. It is prepared in the following forms:—  
 1. Syringe. 2. Gel.  
 3. Paste. 4. Linctus.

Collosole was taken into the British Navy, and also the Indian and Chinese.

#### COLLOSOLO ARGENTUM.

A valuable, and very valuable, colloidal silver preparation, in which the silver is in a form which is easily absorbed, and which is not poisonous.

Indicated in: Syphilis and venereal disease, Eczema, Psoriasis, Scabies, Erysipelas, Ulcers, Burns, Scalds, and all other skin diseases, and also in the treatment of the throat, nose, and eyes.

#### COLLOSOLO SULPHUR.

A valuable colloidal sulphur, in which the sulphur is in a form which is easily absorbed, and which is not poisonous.

#### COLLOSOLO SULPHUR BATHS.

Given in any form in the most severe conditions. In all cases in which sulphur was wanted, and which the ordinary sulphur preparations failed to relieve.

Indicated in: Syphilis and venereal disease, Eczema, Psoriasis, Scabies, Erysipelas, Ulcers, Burns, Scalds, and all other skin diseases, and also in the treatment of the throat, nose, and eyes.

Collosole was taken into the British Navy, and also the Indian and Chinese.

#### COLLOSOLO MANGANESE.

Given in any form in the most severe conditions. In all cases in which manganese was wanted, and which the ordinary manganese preparations failed to relieve.

Indicated in: Syphilis and venereal disease, Eczema, Psoriasis, Scabies, Erysipelas, Ulcers, Burns, Scalds, and all other skin diseases, and also in the treatment of the throat, nose, and eyes.

#### FALLERINE.

A valuable colloidal preparation, in which the fallerine is in a form which is easily absorbed, and which is not poisonous.

#### COLLOSOLO HYDROXYDUM.

A valuable colloidal preparation, in which the hydroxydum is in a form which is easily absorbed, and which is not poisonous.

Indicated in: Syphilis and venereal disease.

#### COLLOSOLO CUPRUM.

A valuable colloidal preparation, in which the cuprum is in a form which is easily absorbed, and which is not poisonous.

#### COLLOSOLO FERRUGINEUM.

A valuable colloidal preparation, in which the ferrugineum is in a form which is easily absorbed, and which is not poisonous.

Indicated in: Syphilis and venereal disease, Eczema, Psoriasis, Scabies, Erysipelas, Ulcers, Burns, Scalds, and all other skin diseases, and also in the treatment of the throat, nose, and eyes.

Particulars, literature, and requests from—

**THE CROOKES LABORATORIES,**  
 50, Elgin Crescent, London, W. 11.

TELEPHONE: FRANK 347.



# Surgical Manufacturing Company

## TESKE'S STETHONOSCOPE.



Fig. 1

Over 4,000 of these instruments have been sold.  
**Price 15/6.**

Sending Road Price and Catalogue  
7/6 extra.

NOTE: We shall be pleased to submit an approval.

Comprises in itself  
2 separate instruments,  
A Stethoscope as used  
with a Resonator,  
a Phonographoscope  
Phonoscope  
and Lecturer.

Represents the different  
sounds of the body and soul,  
there being no resemblance  
of the instrument.

No understanding of anatomy  
required.

**Surgical Instrument Catalogue Free on Application.**

## HYPODERMIC & SERUM SYRINGES.



Fig. 2



Fig. 3



Fig. 4

### 10 cc Metal Syringe

Capacity	1 cc	2 cc	3 cc	4 cc
Price	5/-	7/6	10/-	12/6

### 10 cc Glass Syringe

Capacity	1 cc	2 cc	3 cc	4 cc
Price	5/-	7/6	10/-	12/6

### 10 cc Rubber Syringe

Capacity	1 cc	2 cc	3 cc	4 cc
Price	5/-	7/6	10/-	12/6

Send twelve 10 cc Rubber Syringes exchanged for a new set by return of post

Price	12/6	15/-	18/6	21/6
Price	12/6	15/-	18/6	21/6

**83-85, MORTIMER STREET, LONDON, W. 1.**

2 Hours from Great Portland St

2 Hours from Bedford Circus



# 'DIGALEN'



THE active principle of digitalis, one of a plantainal origin, and therefore liable to decomposition by chemical action. Physiologists and doctors' prescriptions are in general in doubt as to the time, its action, generally and may become easily lost before reaching the patient.

The only safe course is to administer it, well as the above heart medicine, in its pure form.

## 'DIGALEN'

the active principle of digitalis

DOES NOT DECOMPOSE.

Does not cause gastric disturbance and is rapid in action.

'Digalen' is a simple, standardized solution of DIGITALISIN (Digitalis 'Claret') and instantly preserves the full action of the digitalis acting up to the moment of administration. 'Digalen' is prompt, powerful and non-toxic in action.

Found in the following forms:

- 'Digalen' Solid (one 5-15 centigram) in 10-15 bottles.
- 'Digalen' Tablets (one 5-15 centigram) in 10-15 bottles.
- 'Digalen' Syringettes (one 5-15 centigram) in 10-15 bottles.
- 'Digalen' Syringettes (one 5-15 centigram) in 10-15 bottles.

Supplied by all Chemists.

The above is a list of the various forms of 'Digalen' L.  
in 10-15 bottles, 10-15 bottles.



## "Newman" Disinfector

REGISTERED TRADE MARK

UNIQUE PORTABILITY AND EFFICIENCY

Simplicity of Construction and Management

Low initial cost and Economy in Use

Disinfects already employed at the Front

When erected measures: 48" x 18" by 27" x 18"  
by 18" x 18" high

When Folded for Transport, 27" x 18" by 27" x 18"  
by 18" x 18"

*Copy of Disinfectant's Report was sent to the  
Army Medical Department*

The Laurie Marshall and Vending Co., Ltd.  
LONDON

10, NEWMAN RD., GUY'S CLIFF RD., GUY'S CLIFF, W. 1

## HÆMOSTATIC SERUM (F. & L. Co.)

An article affecting in all cases of hæmorrhage

**HÆMOSTATIC SERUM** is a sterile fluid derived from equine sera. It is composed principally of plasma-fibrin and antihæmorrhagic serum obtained in physiologically balanced solution ready for immediate use. It keeps well.

**HÆMOSTATIC SERUM** is indicated in the treatment of all types of hæmorrhage, particularly those depending upon imperfect coagulability of the blood. It has proved of great value in pulmonary hæmorrhage, pyæmic hæmorrhage, obstetrical hæmorrhage and in operative hæmorrhage. Its administration is hæmorrhagic, stops blood flow in wounds (external or internal) operations in a variety of postoperative hæmorrhage.

**HÆMOSTATIC SERUM** may be administered externally or subcutaneously. The dose is 1 to 2 c.c. (up to 10 c.c. in 100 c.c. of the fluid) and the hæmorrhage is arrested. Hæmorrhagic Serum is the effective when applied to the point in bleeding surface.

Directions: 100 c.c. (12" x 18" x 18") applied in bulk containing 10 c.c.

**PARKE, DAVIS & CO.,** OF NEW YORK **LONDON, W. 1.**

## THE TONIC FOOD

HIGH ASSIMILATION, HIGH FOOD VALUE, BUT A  
TINY SUGAR, CONTAINS "SWEET" TASTE  
OVALTINE, THE BEST TONIC FOOD

# OVALTINE

DIET FOOD BEVERAGE

CONCENTRATED IN THE FORM OF A STERILIZED  
POWDER, IT IS THE "TASTE" OF THE "TASTE"  
OF THE

NERVE STRAIN PHOSPHORUS  
INDIGESTION GONORRHOEA  
DYSENTERY FEVERS

PREPARED BY THE MANUFACTURERS IN THE U.S.  
IN THE U.S.

SUPPLYING FOOD TO ALL WHO ARE NOT TO BE  
OF THE "TASTE" OF THE "TASTE" OF THE "TASTE"



A TONIC FOOD

J. WANDER LTD.,  
40, DORSET STREET, LONDON, E.C. 1  
Wishes to keep a London Home

## ASPIRIN TABLETS

ENGLISH ASPIRIN ONLY.

Aspirin is the name of the active ingredient in the tablets.

We make comparison of these Tablets with those of other  
Manufacturers.

ASPIRIN — The active ingredient in the tablets is pure Aspirin.  
The active ingredient in the tablets is pure Aspirin.

ASPIRIN — The active ingredient in the tablets is pure Aspirin.  
The active ingredient in the tablets is pure Aspirin.

ASPIRIN — The active ingredient in the tablets is pure Aspirin.  
The active ingredient in the tablets is pure Aspirin.

SAMPLES OF THE ASPIRIN AND TABLETS FREE ON APPLICATION  
Specify the quantity for large quantities in English, German  
and other languages.

By order of the Government, London, 1st of January 1914, of the best quality and of  
high reputation, supplied to the British Army, Navy and Air Force, and  
to the Government of the United States.

**B. & T. KIRBY & Co., Ltd.,** Newness House, Willesden Green,  
LONDON, N.W. 2

CONTRACTORS TO HIS GOVERNMENT



# Sphagnol

## A DISTILLATE OF PEAT

POSSESSING THE SAME ANTISEPTIC PROPERTIES  
AS BRONCHON MORS.

When taken out of the bottle, the bottle weight  
the contents of 10 bottles (112) for 1/2 lb.  
the 1/2 bottle only, provided by Medical Officer  
and is registered for 1/2 lb. for the purpose of

COUGH, BRONCHITIS, ASTHMA, BRONCHOPNEUMONIA, ACUTE  
BRONCHOPNEUMONIA, BRONCHOPNEUMONIA, BRONCHOPNEUMONIA

For sample for sale, apply to a firm of our kind for an application

PEAT PRODUCTS (SPHAGNOL), LTD., <sup>INCORPORATED IN ENGLAND</sup> London, E.C. 4



## Rubbish

And REFUSE.

The CLEAN and SANITARY  
method of disposing of Refuse  
and Rubbish is by BURNING in  
"HARVEY" DESTRUCTORS.

And are DESTROYED BY

SHIPS, DOCKS,  
HOSPITALS, CAMPS, Etc.

Registered in M.C. and other countries. Harveys are  
used in 1000 instances of Hospitals, Factories,  
and other places. Free estimates.

For particulars apply to—

The New Destructor Company,  
LIMITED.

Water House, Bedford Street Strand, London W.C. 2

Gold Medals awarded London, Barcelona, Brussels, Alton

## **TONIC. Huxley's**

### **Syrup of Glycero-Phosphates**

**With the Acid FORMATES.**

A valuable tonic, especially adapted to the Acute, Chronic, Phosphoric and Stronic and other conditions, such as the various forms of debility, etc.

Its action is to build up the system, and it is a powerful tonic, especially adapted to the various conditions of the system, such as the various forms of debility, etc.

See full details of all and all in the

## **ANTISEPTIC. Huxley's**

### **SAL-ANTISEPTICUS.**

A powerful antiseptic, especially adapted to the various forms of debility, etc.

See full details of all and all in the

## **ANALGESIC. Huxley's**

### **Menthol and Wintergreen Cream.**

A powerful analgesic, especially adapted to the various forms of debility, etc.

See full details of all and all in the

See full details of all and all in the

**Anglo-American Pharmaceutical Co., Ltd.**  
**GALEN WORKS,**  
**55, DUNSTON ROAD, EAST CROYDON (LONDON)**









# Illingworth's

## RADIOPRINT ... PAPER ...

FOR DIRECT X-RAY  
PHOTOGRAPHS ON PAPER



A RADIOPRINT is a direct X-ray photograph on paper. The image produced is a negative one, similar to that produced on an X-ray plate. The result however is viewed by reflected light, like an ordinary photograph held in the hand or lying on a table, and not by transmitted light as on X-ray glass negatives. A Radioprint has the advantages of being unbreakable, easily handled either wet or dry, absolutely permanent, and approximately half the cost of X-ray glass plates.

Sole Manufacturers:

**Thomas Illingworth & Co., Ltd.,**

BARR HOTEL, WILLESDEN JUNCTION

LONDON, N.W. 10

WRITE FOR SAMPLES

"RADIOPRINTS"

Illustration showing a radiograph of a mechanical part, likely a gear or engine component, demonstrating the quality of the Radioprint process.

**Journal**  
of the  
**Royal Naval Medical Service.**





Journal  
of the  
Royal Naval Medical Service

EDITED BY

WURDEEN COMMANDER W. L. MARTIN, D.S.

VOL. V

1919.

2019 SALE 7s. 6d. (HARDCOVER) 11s.

(PAPER) 7s. 6d.

PRINTED AND PUBLISHED BY THE LONDON AND WESTMINSTER PRESS, LTD.





Journal  
of the  
Royal Naval Medical Service.

Original Articles.

MEDICAL ARRANGEMENTS IN H.M.S. VINDICTIVE AT  
PILGRIMAGE ON APRIL 22-24, 1906.

By CAPTAIN CHARLES FRANK S. MILLER, R.N., D.L.S.

My appointment to H.M.S. *Vindictive* (temporary) on March 23, 1906, on instructions of forthcoming events of medical interest. On joining her, on a more intimate acquaintance, that the ship was merely a shell of a battleship, large almost to make her an advantage which to put in daily, was to be obtained. A great deal of the and third week, which the conditions entailed was done in that ship was made before these actually taking part were ready.

Right up to the date of departure the large majority of the crew, who called on April 22nd the various ships forming the fleet, were accommodated in the temporary depot. Each ship, however, as the medical completion was provided with a detachment of officers and men. It was with one of these crews that I found myself in H.M.S. *Vindictive* on April 2. From between given in the *Vindictive* many days of the crew of the undertaking had been given, but the first year of the old *Vindictive* provided medical for inspection. It was plainly evident that the crew was to be a short one from the condition of the ship, and the provisional nature of her superstructure. As the superstructure with its rigging became gradually erected the establishment of the hospital from the *Blade* towards the end of the engagement, a certain short description. A temporary wooden deck had been fixed running the whole length of the ship from bow to poop on the port side from which depended rigging and beams to enable the stowage and demolition parties to descend quickly and avoid the necessity for climbing up the sheer sides of the *Blade*.

The addition of so much weight to the consequent liability to sink had a great risk which had to be met. In all respects, the old "Yule" with 4 power I made the same as described last. The original design would have raised the masts to a flying height on the quarterdeck with capstan winders. I abandoned this idea. Even if the foremast had gone the mainmast would not help matters, the masts were not made topgallant, the mainmast had three and the mainmast of 500 tons which weighed in once in the machinery needed the possible risk from outside force.

In this article dealt only with the medical arrangements while below, during, and after the action. The other ships engaged in the enterprise particularly of interest is, practically the same, worked staff of the expedition was somewhat larger in the "Yule". The medical arrangements on the three ships are dealt with later.

#### MEDICAL ARRANGEMENTS MADE READY FOR THE ACTION

It already explained only the skeleton means used on the ship, the details of the men being accommodated on the "Hudson". During the work of making and preparing all that would prove to be done to keep the men as well as physically and physically fit was done by the officers in charge of units. General games, boxing, footballing and physical drill were included in with the rest work of preparation and rehearsal. All water and drainage were given full consideration in the elements of medical arrangements in both dressing and storage apparatus during the period.

Next—the medical staff embarked in "Yule" was as follows: Surgeon and 1st Lt. Evans and W. L. Shoggen, and 5th Lt. second second class, Evans, 1st Lt. Evans, and a first class party of four, two men (ambulance) and a first class party of four, two men (ambulance) and a first class party of four, two men (ambulance). It was to be assumed that the main expedition of the land would not need actual medical aid and the main objective was to be a certain extent of operations, and for most cases the medical staff was not doing but a minimum of the medical staff. The medical staff was highly compensated for by the volunteers, assistance of all ranks and a volunteer specially organized and trained staff of four were formed from the diving, engineering, marine, and other parties detached to expeditions. These parties, whose principal work was in the approach, were trained to work under the most adverse conditions and a medical point of view were highly instrumental in keeping up the supply of medicines to the proper and necessary, this included from the hospital to the upper deck, the diving stations, machine gunners, and then deal with them. Ambulance parties were with the type "I" and the other of the ship, the constant presence and the presence of medical assistance. From the hospital, all these parties were thoroughly drilled in the use of the Red Cross and marine, ambulance and it was the transport of wounded to the ship by means of hoists and Red Cross and ambulance.

[illegible]

**Abstract**

It takes an experienced eye to tell the world in terms in which it understands the need for these studies and the processes by which to conduct them. The author's own experience, and the experience of others, is that the most effective way to get the message across is to use the language of the audience. The author's own experience, and the experience of others, is that the most effective way to get the message across is to use the language of the audience.

It seemed to many Slovaks—especially in the states' big cities—that the 1918-1919 unemployment problem, though their own lot thirty years earlier, was not theirs. The unemployment management was good and was augmented by the imports of food. In 1919, the cost of wheat in Chicago, for example, was 100 cents per bushel, and the Slovaks were not

Using *Styrring-Stolten* = 1 as the most difficult, the mean difficulty below the quantile link and node means. Effect of mean is actually a mixed function of the amount of gain in learning and the amount of failure in recall, and the average bias per country in the link + link node function, on single-supply and cold and hot nodes.

All subjects were fitted with an oxygenation mask and a nasal cannula or, for those who are nonverbal, an oronasal cannula was provided on the day of study. The maximum difference between a subject's oxygenation plant was 10% on intake, table and drink. The mean difference in oxygenation was 4.5% on intake, table and drink. The mean difference in oxygenation was 4.5% on intake, table and drink. The mean difference in oxygenation was 4.5% on intake, table and drink.

*First Dressing Station*.—This station was principally devoted to a waiting position under protection for the medical parties to be employed outside Main deck and for that reason had to be situated somewhere near the launch landing on to the temporary deck supporting the lower 'A' secondary accommodation tables was nearest was the possible shelter and shelter, considering that could not be dealt with by the forward station. This station was situated on the starboard side of the deck, the forward station. The personnel forming the Main stretcher party, who were all dressed in khaki with steel helmets and red cross armbands consisted of two specially selected stretcher parties and one V.D. acting under Surgeon telegraph.

*Special Station for Burns*.—In view of the large amount of ready-made white woodwork fit, and the heavy shelling anticipated, areas of boxes were suitably arranged to be numerous and a special station was established for such injuries, partially to provide immediate relief to those suffering and also to prevent congestion in the remaining stations. This station was situated amidships on the main deck close to the chicken house and was in direct communication with the engine room, launch and engine from the motorboat. Large supplies of petrol and oil and machine drawings were provided and the personnel (one V.D. acting and two dressed) was specially instructed in the application of them. Briefly stated there have the patients recommended others were selected for the following reasons:—

- (a) They afforded the maximum protection possible for the wounded.
- (b) They gave access to the upper deck and engine-room.
- (c) They interfered least with the lighting of the ship.
- (d) They were well lighted.

*Note*. Secondary shelter was provided in all places where wounded were to be dealt with, machine and machines were freely distributed on per arranged positions and in specially constructed boxes, and in addition numbers of incandescent battery lamps and lanterns were equally decided.

#### *Accommodation Arrangements*

The main bay was prepared and left ready to receive cases if necessary, but its situation on the windward side forward provided the use as a station during the attack when the port side would be damaged the ship. For this reason the whole of the port side of the main deck was cleared and machines were provided for the accommodation of wounded. Every man and woman were supplied with anti gas respirators each one had been taught its use and orders were issued that the gas was to be used. All original arrangements were checked between the forward and after dressing stations. It was not intended to transfer the Main stretcher party whose principal work was to be done ashore by expecting them to deal with cases which occurred prior to landing. One sick bay was left in each of the officers



Commanding Officer to be placed in different parts of the ship before possible action. Each bag contained ten cigarette packs drawings with small attached four piece and drawings heads of women and fruits, ten cigarettes, an coffee hamper, two triangular hampers, twelve vials, and twelve tablets mounted. Alcohol, glass and one tube of soap, containing twenty tablets of 1/2 gr. (as the tin labeled "Pain") is to be dispensed by the Captain, 1st Lieutenant, or a Petty Officer. In case of action, friends with arms, guns the officers were instructed to place two vials on the patient's tongue, the dose to be repeated half an hour later if necessary. First-aid drawings were explained and each woman and soldier being was supplied with one, which was attached outside the blue paper to the bag.

Each bottle used the same capsule which were made up in the time when the expedition, completed in every detail and thought was made, in the town of Mandal on April 14. Throughout the period of preparation every officer and man threw himself wholeheartedly into every effort made to secure efficiency in whatever department the effort was made. (Figure 18, 19) the men forming the expedition made an interesting study. At times it was all over the place and the patients, before, when in the great observatory was distributed, accompanied by a thoughtful check, asked if hands to have two or three hours, good sleep, and much by having the women was expected to recover.

The first two attempts were abandoned when moving the Helgum coast on account of the darkness of the wind, an all important factor when making boats and other. Besides, apparatus from an integral part of the vessel. The interval between the first and second attempts was probably employed in perfecting the arrangements already made, all boats being then started in spite of the disappointment of the failure to start. At noon on April 12 the weather conditions proved favorable and the special morning conditions, and other parties were evicted from the Helgum and Umanak. The expedition left the town at 1 p.m., "Victory" leading, towing "Lee" and "Endell" and followed by the two black ships. The extraordinary assurance that the same the enterprise was going to be successful proved the entire team and the undoubted delight of all hands manifested well on the down to play various kinds of musical instruments. The men held a meeting on the approach and then walked down the road out as it was gradually known as our Margaret and that "All ends of the world". The general weather conditions remained favorable until 9 p.m. up to which time a light nor westerly wind with a calm sea had prevailed. At 9 p.m. however the sky became overcast and a slight mist which gradually increased on approaching the coast, prevented a change in the wind. The Vice-Minister agreed at 10:15 p.m. so the effect that the operation would be prevented with nothing all decided, and the morning, however necessary to first, going into action were made in 15 hours in the medical department.

[illegible]

Further, almost immediately, the upper wind was lost and very quickly, no less than two complete waves broke, leaving the forward horizon calm. Cases immediately began to swim to the surface and the diving stations. Mal'nev began to penetrate forward, toward and over the wounded and stricken parties, now taking them up to the diving stations. The first of these shells was the 1st paper supply, the *pharmaceuticals* and the first mass reaction, upon the formation of the forward diving station by a mixture of oil and water. The mixture was consumed the victim, unbearable. In addition, the shell so damaged the WT since landing to the port side of the wreck deck, so to make it impossible for the transport of wounded from the very first shell to strike the ship externally upon one paper supply (this) and necessitated the use of such unprocessed and valuable supplies as the rock bar, and stanchion side of the cargo deck. The crew, taking along these and then consequent unpreparedness have clearly brought. At a later stage when this declaration was fully appreciated, orders were given to bring cases off and transport them forward to the 1st, 2nd, 3rd and 4th side to the port cargo deck. The resultant, through various losses,

[illegible]

circumstances in the morning resulted in a congestion in the hull which could delay slightly the movement on. The long, narrow (narrower towards the stern) Chaggoed Bay (see the picture facing this) was in position before arrival of the "Mole" in order to assist on shore. The ship moved alongside the Mole about midnight and the morning parties of women and children landed immediately, followed by Sergeant Chaggo and his auxiliary parties. At this period the other shore was an rapidly filled and confusion reigned and Captain's quarters were immediately occupied. The difficulties of landing the sickening troops and unloading the wounded were aggravated by the fact that by the time the ship arrived at night only two out of the eighteen boats were serviceable, as the rest of the fleet was. The small which had been increasing during the last previous 24 hours became considerable, and the prospects failing to hold the ship steadily alongside the "Duffield" performed this duty by jacking.

Wounded's quarters. This consisted of a conversion of troops and personnel which added to the difficulties of attending the wounded. Despite these difficulties the transport of the wounded from the Mole to the ship was completed. During the last of these however some of the cases had to be carried from the shore and being brought on the Red-Reduction stretchers others even being, did down the bows, the Captain supervising the operation from the top of the poop. Throughout the time "Vindictive" was alongside the Mole cases were arriving on such numbers as to require attention, more than limited supplies in the majority of cases. Some of the cases were in great pain and it was found that a much speeded with chloroform and other and had on the face was welcomed by the patients while the surgeon was trying about. At one time it was found that a case of which cases were coming was more than the doctors could cope with and three of the medical parties prepared to discuss ready to discuss the cases. During the morning there were no sleeping berths. In any small taking temporary cases should be a regular medical staff told all for each station and the houses should be given attention so that there are not to be in their stretchers for one reason.

At 11.15 am "Vindictive" left the Mole and from there till landed through the difficulties part of the medical staff was fully occupied in attending to the needs of the wounded. An attempt was made to do any operations work, as in any operation it was not of the question of the patient. In all the greater value to see the advanced part not, continued to be with the medical staff and in fact, since the time of arrival cases of this could be dealt with at one sitting in a well-equipped hospital where it was that would be in a few hours time.

In the last few minutes after leaving the Mole the further shelling was. Variation by the large gun batteries was rendered ineffective by strong E. winds which was again put up. During passage four patients were disembarked and the water dressing of wounds were replaced. Cases which were not under the influence of the last operation of morphine were





supplemental efforts were engendered from some gas, the nature or origin of which we were unable to determine. The chief symptoms were vomiting at the eyes and coughing. At other times, we were handicapped by our own smoke screen, which penetrated into the main decks making the atmosphere oppressive and reducing the visibility to a few yards. This, however, disappeared shortly when we were clear of the smoke screen.

*Precautions*—The two cold dressings were most efficient and it was very satisfactory to realize from the manner in which the men had applied the dressings that they had benefited by their instruction.

Rubber bandages were found not only to be easier in their application than the triangular band to be more comfortable when applied.

*Verplan*—We should have been almost helpless without Molloy's courage. When one has a large number of spectators to gaze on a limited time, one seldom has truly lively st. ability to execute operations as is given with one mouth alone. All the samples for use during and after the action were kept in a good form in the rubber capped bottles which proved extremely efficient.

*Ice System*—Owing to the construction of the ship the bulk of ice was in the space available for the wounded and for certain other reasons, this system was not adopted numerous being ordered as directed instead.

# CONSIDERABLE DIFFICULTY

THE UNIVERSITY OF CHICAGO, CHICAGO, ILLINOIS, WINTER, 1919-20

The application of money, and especially money stamps, to the technical field, raised in these great engineering schools, the most serious expected defect. There never has been a time in all these years when engineering has had to depend on its cash resources in financing the past four years. In former years, 500 computations a year or less. Perhaps a good many have the correct figure, and surely that number are performed easily. Such an eye (some kind of) required results, the various methods held concerning computations, but they are discarded. In the light of present-day experience and a great deal of money is spent in labor in the engineering program and the final results, it has been shown that the classical engineering work for engineers, which appears to have been taught as in the student days of 1880-1890, is not the moment of the moment, to give the knowledge of working, provided by the student, and under the guidance of the student. This would be, naturally, called to do. Formerly, the program would concentrate itself with the results of his having earned out the technique of engineering acquisition. Now, he would be better, what the book is, that is, of his work, to say, it is satisfied with what he has done for five points. In this situation, we have continued the program and the final two, having experience in the former as an answer to the latter in general sense. But there is a defect which may change the balance, and this is that if you are faced with a great technical book, if they will only submit to the necessary treatment. Many have been doubtful of the material provided, but have passed in them. As it has been considered to them that, after much trouble of writing they should be able to write again, and on a book, that it is no longer, except those of pay. One of many such cases is that in January. A box of 50 half-ton books, before the year. A month after being supplied with technical legs in hand, he was able to write again. His curriculum and program were so strict, that within twenty-four hours he was in a state of mind and had to be put under treatment. Technical knowledge as they are at present, are still at their military. But each program has been made in their curriculum during the past four years, that is, and too much to hope that in the near future, some and legs, will have been accepted which will meet the requirements of all engineering stamp, as they are presented, so doing many with much of the necessity of doing it, the stamp to meet the requirements of the technical book. This and is particularly desirable in the case of short-stamps before the office year.



*The Making of Flaps.*—A flap gives better results than a suture, experience by the reader will fully bear in the latter more has been mentioned, and the suture is almost over the end of the bone. Flaps may be made from any available skin and suture on one tissue and muscle should never be overlooked by it being a part of an less likely tissue at the end of the stump, and to put it there means bone has to be watched incessantly. Although it is desirable to have the ear either behind or in front of the nose and of bone, and the nose looking straight anterior and posterior flaps, never extend more than where there is plenty of available skin on the sides or outer aspects of the head and this should always be utilized in preference to extending some bone in order to make anterior and posterior flaps. A little experience soon teaches the exact length of flaps to employ—they should be just long enough to allow a large drainage tube to be between them and the bone when they are sutured. Any greater length of flap results in a folding and in the stump.

*Position of the Muscles, &c.*—After the skin and vasculature tissues have been dissected up, the muscle should be cut straight through at a level half an inch below the place where the bone is to be seen. The incision covering the nerve has should also cut through the peroneus right under the bone. The peroneus should then be raised with a blunt dissection. After the bone has been seen through skin and peroneus should be seen over the cut end. The importance of this step cannot be overestimated for the cut of peroneus, that hinders peroneus growth of long again which we study always guard.

*Capture of Nerve.*—Every vessel seen should be ligatured with catgut silk should never be put under any circumstances, the same in these cases with ligatures, not being absorbable for a great length of time, are frequently the cause of serious burning in the ear before or when the limb comes to the work and these wounds will not heal until the offending ligature comes away or is removed.

*Position of Nerve and Tendon.*—They should be drawn down as far as possible and each cut off with one stroke of the knife.

*Position of the Flaps.*—After having seen that the flaps come together accurately a few deep tissue sutures of silver wire should be inserted and then the drainage tube should be accurately approximated by two rings or sometimes just as much care should be taken over this step as in taking up the suturing of an incision in the neck. Points taken in this drainage will be really repeated when the bone comes for the finished back to be fitted only then the the value of a ear from an accurately sutured wound be appreciated.

It would be tedious and unnecessary to describe here the various types

(These notes are many hundreds of all, by a few lines each section. Some one of it is put in a convenient form by the author, that copies have been made and are now made.)

of attached bones of their commonness. The number of members in the family, however, varies greatly with the number of members in the genus. In the case of the *Amphipoda*, the number of members in the genus is usually small, and the number of members in the family is usually large. The number of members in the family is usually large, and the number of members in the genus is usually small. The number of members in the family is usually large, and the number of members in the genus is usually small. The number of members in the family is usually large, and the number of members in the genus is usually small.

#### THEORY OF THE LARVAE OF THE AMPHIBIA

The theory of the larva of the amphibian may be divided into three parts: (1) the theory of the larva of the amphibian, (2) the theory of the larva of the amphibian, and (3) the theory of the larva of the amphibian.

(1) *General Theory of the Larva of the Amphibia*.—There are three parts to the theory of the larva of the amphibian: (1) the theory of the larva of the amphibian, (2) the theory of the larva of the amphibian, and (3) the theory of the larva of the amphibian.

(2) *Theory of the Larva of the Amphibia*.—There are three parts to the theory of the larva of the amphibian: (1) the theory of the larva of the amphibian, (2) the theory of the larva of the amphibian, and (3) the theory of the larva of the amphibian.

(3) *Theory of the Larva of the Amphibia*.—There are three parts to the theory of the larva of the amphibian: (1) the theory of the larva of the amphibian, (2) the theory of the larva of the amphibian, and (3) the theory of the larva of the amphibian.

(4) *Theory of the Larva of the Amphibia*.—There are three parts to the theory of the larva of the amphibian: (1) the theory of the larva of the amphibian, (2) the theory of the larva of the amphibian, and (3) the theory of the larva of the amphibian.

(5) *Theory of the Larva of the Amphibia*.—There are three parts to the theory of the larva of the amphibian: (1) the theory of the larva of the amphibian, (2) the theory of the larva of the amphibian, and (3) the theory of the larva of the amphibian.

[illegible][illegible]

Other defects rest in the fact that the flap may become too long; it becomes displaced to one or other side or moves still backwards. The possibility of these defects, arising may be avoided by doing what may be termed an extended flap. This differs from the classical operation mainly in two particulars (1) the position of the incision for the heel flap and (2) the position for saving the bone. In the classical operation the incision is made with only a slight inclination backwards and the result is in the limb; flap is commonly seen. But if the incision is inclined more towards the tip of the heel so that when it crosses the sole of the foot it is a little more than half an inch above the tip of the heel then it is in the clearest operation; the end of the stump will be ideal in size. The incision should extend from just behind the tip of the internal malleolus in a point half an inch above the tip of the external malleolus. The upper ends of the incision are joined by an anterior incision at the level of the sub-point and



FIG. 1. Flap, showing the extended form, superior view. The dotted line, a point, is common to all. FIG. 2. Flap, showing the extended form, lateral view. FIG. 3. Flap, showing the extended form, medial view.

the distal upon that point. The foot should then be counteracted and the incision directed out of the heel flap by keeping the foot in line with the bone for then it is much easier to do than to direct the flap off the bone. Secondly, to the classical type the muscles are sewn off together with a fold of the lower ends of the tibia and fibula. In the extended operation half an inch of the lower ends of the bones and any projecting angles are removed. The stump given by the extended operation is thus slightly shorter and much less bulky than it is in the classical operation, and as a result it is much better from an end-bearing point of view—and what is more important still it allows the artificial sole to be adjusted absolutely at the proper level, thus doing away with the necessity of a high heel on the wound side.





cannot be fulfilled. As a second warning, it may be stated, in connection with the position of the distal end of the distal extremity, that, if the distal extremity is still caught in this position when they leave the operating room, it is very easy to see that the distal extremity is not so conveniently reached as if the stump had to be moved re-impaction above the knee line to be performed, otherwise the distal leg will be more completely in order to wear such a leg, the stump has to be fixed to a right angle so that the patient can lean on the end of the basket, and then the end of the stump sticks out backwards. Added to this, when the patient sits down, the lower end of the artificial knee projects beyond the level of the natural one. Thus in cases where an amputation at the level of the knee has been unavoidable or has been done in ignorance and the stump fails to be useful, a re-impaction through the usual plan is the wisest procedure, for the stump resulting is a good one and the retained leg which can then be worn has a very much better cosmetic effect than the limb just described. Therefore we may say that an impaction at the level of the knee must never be done if any other can be saved.

#### DISSECTION OF THE KNEE-JOINT

Much that has been said in condemnation of most of classic operations is applicable with equal force here. It is true that the disarticulation gives a good and leaving stump, but the end of the stump is too bulky and consequently the artificial limb will have the same defect as the stump of the knee-joint. Besides, the knee has not been cleared and the thigh basket has to be fitted over all, it follows that the lower end of the artificial knee will project beyond the level of the natural patella when in the sitting position and this does not please the patient. The disarticulation has no advantage over a transtibial amputation. Should surgeons still persist in doing the disarticulation, however, and by Stephen Smith's method, they will do well to go further and remove the patella for it is now as well as if left in a source of annoyance to the limb under and also to the patient by virtue of its mobility. The patella should only be left when a Stephen Smith has been done in a rapid case and the flap knee-band left open for it can be later replaced on a Kleyer-Schmitt suspension.

#### AMPUTATION THROUGH THE THIGH

The higher the stump the better. The ideal stump is obtained by a proper artificial impaction of the bone is made through the upper portion of the condyles, and the wound is placed mostly behind the knee. The distal extremity is not impaction above the anteroposterior surface of the patella is made and the remaining portion of the patella is passed to the end surface of the lower, given excellent results, for the stump is capable of bearing the whole weight of the body. This operation should always be

done if possible, to even if the patient works loose again it is easily be removed and the end-bearing capabilities of the stump are very little impaired. A word of warning must be uttered here. In all thigh amputations the adhesion scarves should be drawn down and attached to the peroneus; otherwise they will slip over upward, and form a bulging mass on the inner side of the thigh. This is very uncomfortable to the patient and the effect is worse still if it bulges above the upper end of the bucket. An equally shorter amputation in the thigh, unless 7 in. at the lesser extent, there will be difficulty in attaching the stump to the bucket of the artificial leg, especially if the stump is a fat one. In such cases a pelvic band has to be fixed to the bucket. This apparatus is somewhat like a brace, and fits round the body at the level of the pelvis, inside two inches and is fixed on the outer side of the limb by a metal upright with a screw hinge at the level of the top of the great trochanter. Its function is to prevent the limb from swinging off the stump when the patient walks. Even when built the least measures and the stump is a fat one a pelvic band is generally necessary. It might be asked "How short can a thigh stump be with expectation of a good result?" The answer is this. Unless the length is 3 to 4 so long before the lesser trochanter, the stump is useless, for it is too short to propel an ordinary thigh bucket and it is too short fixed and attached, as a nearly straight line, it is quite impossible to fit any limb to it at all. The patient is, therefore, in a bad way, for although his stump is too short for a thigh bucket it is also too long for the bucket which is fitted to hip amputations. Therefore unless 3 to 4 in. of bone can be saved below the lesser trochanter the surgeon must amputate through the posterior neck of the femur, or else disarticulate at the hip joint, remembering that a patient with a hip amputation can walk nicely, as well as one with a good thigh stump and always better than one with a short thigh stump.

#### DISMEMBERMENT AT THE HIP JOINT

There are two clinical operations in this position. (1) Amputation by a radical incision. This gives excellent results, but in doing it it must be remembered that if the flap are longer than is just necessary to cover to the side of the pelvis a short fleshy stump will result which will be a hindrance to the limb unless. (2) The *Perineus Jordan* amputation. This operation should be considered slight, for it is a friction procedure attended by ghastly bloodshed. A patient with this amputation cannot wear an artificial leg, he has to have a large stump remaining which is nearly half the length of the thigh, and from which the bone has been detached. It is useless for a thigh bucket, and there is too much flesh to push into a hip bucket. Therefore it must be relinquished before the patient will be able to have an artificial leg. The *Perineus Jordan* amputation should never be done under any circumstances. Referring back for a moment to the amputation by a radical incision it may be stated that the radical version

in shape are found in the same animals. An incision first introduced and probed by assistants M. Higgins, R. & M. C. gives valuable results both in gross dissections and in short sharp snips which have led to the reflections (1, 2, 3). It would be well to quote, for description, Higgins.

I make my incision, leaving as much skin as possible on the nose and posterior surface. Before starting I put the postero-inferior flap loosely outward and forward, and remove all redundant skin with scissors. It is absolutely imperative that there should be no redundant tissue or skin on the post-inferior flap.

The preliminary incision is made below Pappas's ligament over the femoral vessels, about 5 or 6 cm. long.



Fig. 5.—To illustrate the incision of the leg. Separation of skin (A, B, C) and removal (D, E, F). The skin flap (D, E, F) is turned out (G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z) and the skin flap (D, E, F) is turned out (G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z) and the skin flap (D, E, F) is turned out (G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z).

The medial + vent. are divided between ligatures. The incision is then carried upwards for a short distance parallel to Pappas's ligament, and just before reaching the adductor tendon it is carried downwards and slightly backward to a point 3 cm. below the fold of the groin, then back again, the posterior surface of the leg, and on approaching the knee the incision is carried up to reach the middle of the post-inferior flap, and then on to join the commencement of the lateral incision. The skin and subcutaneous tissues are then dissected as far as possible up the wing. The muscles are then divided in two, those in front and on the inner side as close to their origin as possible.

The head of the femur is then encircled in the usual manner.

It has been many times when the muscle has been exposed. The results are shown in figs.

#### DIFFERENCES OF THE UPRIGHT POSITION.

Commonly, when an arm amputee grasps things of the 4 circumference, and if patient who has lost one arm thick, moves it then it has position for he feels that both palms must be used to hold one hand steady, everything where he previously employed both. Nevertheless, while an artificial arm is of great assistance to him, he is not so well off as a man who has lost a leg; for the movements of a hand and arm are more highly considered than those of the leg, and it is impossible to reproduce them with precision on a mechanical apparatus. It follows from this that every position of the fingers that can be saved is important. Supposing the patient had only the first phalanx of the thumb left in use and had lost all the fingers of that hand; what chance to have it of use, when than any artificial hand he has is able to have artificial fingers as a glove fitted to his hand stump and to those he are approximate the stump of his thumb. In this case, only the stump of one finger only is valuable. The moral, therefore is, save every portion of the fingers possible before the osteoplastic surgical points. There are sometimes cases where the thumb and fingers have been lost in *deh.*, and in such cases the surgeon might be tempted to amputate above the wrist, knowing that an artificial arm would be more useful than such a stump; but at present it would seem advisable to have such a stump above for some experimental work tends to show that the movements of the residual wrist might possibly be employed in controlling the movements of artificial fingers. Therefore it would be well in such cases to explain the possibility to the patient, leaving him to decide whether he can afford to wait.

#### ADJUSTMENT OF THE FINGER AND THUMB OF THE MECHANICAL

The clearest and most useful goal, and should be always kept before, for they are at covering the mean end of the limb with a primary day. No improvements have been suggested to use be made on these principles.

#### DISSEMINATION OF THE WRIST MOVES

This operation should never be done under any circumstances for a in quite unless to the patient. In fitting a hand to such an operation, the stump has to be considered as though it were a human stump, and the hand has to be fitted over it. Consequently the hand will be at a lower level than the rest of the arm of the opposite side, and which is due, owing to the lower end of the stump being lower than the lower part of the limb, and a basket of the hand up, variety has to be supplied instead of one of the most cases for the ordinary human stump, and this is sometimes apt to make the patient ill and the hand. Furthermore, the lower end of the rubber and skin form a line, irregular surface, and through this the lower end of the stump is very apt to be pulled over. Therefore, never do anything at the wrist joint.

## ARTIFICIALS SIMILAR TO THE FOREMAN

If the hand must be curved, the best place to amputate is  $\frac{1}{2}$  in. above the wrist-joint. For by doing so, a long stump (but not too long a stump) is obtained, most of the pronator quadratus muscle is saved, and the movements of pronation and supination, which are so important to some of the artificial limbs, are retained. These movements become gradually less as we go higher up the forearm, and in the middle third pronation is almost absent. But the stump is still useful for all kinds, and is ideal when the arm is to be used as one of the mechanical varieties where pronation and supination of the hand are required and by the mechanism of the arm, and the stump is not long enough to interfere with that mechanism. Great care must be taken in amputating through the upper third of the forearm for unless  $\frac{1}{2}$  in. of the skin are left the stump is useless, for it cannot be retained on the hook of the artificial arm, and if the stump is at all useless, more time even than this will be required. When these short stumps are fixed to a right angle, the remaining portion of the forearm must be lodged up and push the hook of the stump, being as flexible as possible, and so it must be remembered that every portion of the skin should be saved unless the above mentioned hints. If a very short stump be considered it will be seen that when fixed to a right angle the lower end is roughly on the same plane as the anterior surface of the upper arm and as the stump below the elbow is useless, the whole must be considered useless or lost as though it were a long upper arm amputation and the bucket fixed over all. The effect of the artificial arm is therefore lower than the natural one and the patient is not pleased with the result, and the functional power of such a limb is no better, if as good, as it is to one for an upper arm amputation. The argument therefore is in favour of amputation above the elbow joint if more than  $\frac{1}{2}$  in. of skin cannot be saved.

## DISMEMBERMENT AT THE FORE-ARM

What has just been said applies with equal force here. For the stump left by this operation is too long, and such an amputation should never be done except as a preparative move to a prosthesis, or amputation higher up. The same are frequently seen where the amputation has been done deliberately, the surgeon being under the impression that the longer the stump the better. The results are extremely poor. The artificial elbow has to be lower than the natural one and the amount of the lower end of the stump being broader than it is higher up a face up bucket has to be supplied. This is a constant annoyance to the patient and frequently he demands the arm altogether.

## AMPUTATION OF THE UPPER ARM

The ideal place for amputation of the humerus is at its lower third and this should always be done as preference is a dismemberment at the elbow-joint or an amputation leaving a very short forearm stump. As there is

body is in one (the patient) on the end of the strap and point the strap towards the shoulder.

The two shoulder straps are placed when flaps of the arched anterior strap are employed for support is not only useless, a strap end of a strap but it often causes pain by tension on the nerves. The end ends of the straps should therefore be on the same level as those shown at the end of the book. The flaps may be made without the tension not suitable, but if the possibility of doing equal tension and posterior flaps possible itself it should be taken. An example when first straps unless the book is more than 1/2 in. long below the anterior flap the leverage is extremely good and therefore all the time possible would be used even if the flaps have to be short and subsequently contract and the would have by contraction should the strap be only 1/2 in. long below the range of the posterior straps it is quite useless, for an upper strap buckles can scarcely be held on at all, much less be used. Such a strap should be demonstrated at the shoulder joint, for the arched strap is suitable for the suspension through weakness and for most use there one which can scarcely be held on at all.

#### DETERMINATION OF THE NECESSARY STRAP

Any of the chemical operations may be performed for the respiratory and one of these should be chosen as preferable in having a very short piece of harness. The arched arm fitted to each case by a shoulder cap which is attached to the upper angle of the body band by the shoulder of the arm. It is necessary what amount of work can be put out of such an arm by means of straps and when under the patient with it, the use and location of the effort is possible, and of the patient's position, a look to the hand when common sense, better sense, or better sense, and the natural hand. Even when the whole first quarter has been removed of the type of work can be fitted. Therefore the reason need not be taken to remove a rather piece of harness. It should be remembered that the attachment at the shoulder point is a much more severe operation than that of using a bone through the anatomical neck, but the harness should always be done in performance to the bone. For whenever some arm makes point the rounded shoulder caused by the presence of the hand of the harness the majority prefer the narrow section caused by the clavicle, scapula, process, and placed away for the broader shoulder cap can be fixed with great accuracy and greater appearance in the hollow formed by these processes. The arched shoulder cap naturally makes outside of the body broader than the other, but this effect is not negative marked when the demonstration is performed yet it is if the hand of the harness is left on site.

Having gone somewhat fully into the question of how suspension should be performed in order to obtain ideal straps we are now in a





On the 11th of August, 1900, I finally located a redwood point, and, as it was the day before the 15th of August, I did not wish to leave it until I had done the reconnaissance, so, unfortunately, I was unable to leave until about 10 miles from the mouth of the natural point where I found the redwood stump to be, so I only had time enough to carry a load that I judged that means that the stump will probably be within 10 miles even to a hundred miles. The only remedy left then is to complete the natural point. This can be avoided in almost all cases except those where persons by carrying all their things at the primary operations in the progress of an expedition to traverse the land nearly always the first 10 miles across



**FIG. 1.** The observed and predicted time series of the number of cases of dengue fever in Singapore, 1997–2000. The observed data are shown as open circles and the predicted data as a solid line.

but in cases of large amounts with computerized tracking, it is possible to find cases which show on the opposite aspect of the individual's condition. This should not be overestimated as a day and eventually, when you have extended it you be drawn across the end of the study and then you maintain. Reference to the literature on the social work field is necessary.

We represent a large open channel with rectangular cross-section. The channel has been divided upon the line  $AB$  (see Fig. 1) into the main and bottom of lower basins in the gatekeeper system. The  $AB$  line shows the position where the lower will be seen on the  $z$ -axis, given respectively by the top and bottom. We had a partial gatekeeper from  $z = 0$  to  $z = 1000$  m and the  $AB$  line represented is 1000 m and  $100$  m.

contribute to a patient and carry across the end of the wing making the after margin approximately horizontal (Fig. 1). This position makes certain assumptions for consideration in the present case. It may be considered that whilst the operation is carried on by using clean and the process of grafting still in going, it is a condition conducive to developing and such a flap as represented by I.F.F. in the diagram has a good chance of surviving, and even if it does not the patient will be no worse off than if the complete grafting had been performed in the first place. By a further reference to the diagram it will be seen that in the later flap operation the bone between the bone L.B. and A.C. will have to be excised, and in the long hypothetical case of the leg the resulting stump will be excessively short, and in that of the arm only just long enough. Therefore every portion of amputated skin however unsightly, must be saved at the primary operation and maintained as an open flap until the wound is sufficiently clean to permit closure. There are, however, a few exceptions to this rule which it would be well to note. It has been stated in the first part of this paper that disarticulation of the elbow, wrist and hand-joints should never be done except in special cases when the wound is left open and then only as a preliminary to an ideal amputation higher up. It follows, therefore, that the grafting method may be employed in these regions and no skin need be saved below the point, for there will be ample above it to meet the needs of a flap operation when repair has subsided.

Again in the lower third of the leg the grafting may be done without fear of involving useful lengths of stump, for as shown above, the surgeon's solution will be to do a flap operation on the middle third as soon as conditions are favorable. On the other hand, when the point of bone union approaches the end of extremity an effort must be made to save skin. Any skin amputations must never be performed in the presence of sepsis, for the flap of a wound has never into position, will certainly contract and become useless. The leg will then probably have to be taken off in the middle third and the chance of obtaining the best stump of all is lost. Thus in cases of frost-bite in position retired of the foot where loss of the whole has a anticipated it is best to remove the affected part by the grafting method through the tarsus and later to convert this into an extended flaps.

There are four types of cases which will be met with sooner or later after battle —

(1) *Those Cases where part of the limb has been carried away by a Shell Fragment*

Should such a case occur in the field or on board ship the surgeon might be tempted to do a flap operation, thinking that in case after the injury sepsis would not be likely to occur. He cannot count that temptation on the interest of his patient, for suppuration will almost certainly arise, the flaps will need to be opened up again, re-amputation will probably be necessary, and the stump may then lose much of its usefulness. An ideal

so possible should be done at this time. The bloodvessels should be tied with catgut and any nerves that can be found cut short. Ragged points of bone should be coverd off. Finally the wound should be thoroughly cleaned with Fowler's strong solution (1 to 25 carbolic acid cure line oil) perfumeh of mercury and a double -pronged dressing applied. The use of these tubes should not be started in these cases. Agood - of nascent surgery say that such strong antiseptics kill the superficial tissue of a wound. Such an error is decided and even if it did occur rarely, there is no harm in letting tissues already doomed to die, and if propoies arguments are held at the same time as such the better. Such will not do this. The subsequent dressings should be changed regularly and when conditions are favorable suturesharing of the stump can be undertaken with every hope of success.

*On Their Complication there is a Large Flared extended with Compound Fracture and Angulation is obviously an exteible*

Here the upper fragment of bone must be trimmed and the limb taken off at that level, care being taken to cover all wound when below, for it will be available later as a flap (note fig. 15). the wound that made must be left open, and treated as in the first type of case.

*On Their Case is which Amputation is desired upon first of the Bone Hospital*

There are generally cases of small wounds with a without compound fracture a where where a amputee has experienced and perhaps the program, and so amputation is agreed to agree to save the patient's life. In these the preference method is employed because of its speed, for the patient is so as to make to stand a long operation. The amputee should be made just above the already infected tissue, and the wound left open for free drainage. Weight reduction is applied to the skin whilst healing by granulation takes place. An ideal amputation is performed later if necessary.

*On Their Case is which Amputation has already been performed*

Having been removed and still the thing is said for an internal limb. Under this heading the question of re-amputation has to be considered. That is to say in cases where the stump is either too short or too long, or the granulation not so satisfactory.

Other conditions preventing the wearing of a limb may well be not advised later under the heading of "Infection". The great difficulty in these cases is to decide when it is safe to open up the stump again. The fact that is run is that of starting a suppurative process again. The first wound was dressing with propolis, exsurgens which during the process of granulation have been shut off in these cases of a acute points, and so every subsequent operation many of these points are opened and general infection of the wound results. This state of affairs is frequently seen when the first amputation was performed in long cases as twelve inches previously. As a general rule, however, when superficial and deep infection have been shown from the stump for three or four months it may be considered safe to

applies the counter-pressure (as proposed in the accompanying Letter) and in consequence is withdrawn. It is impossible to measure 1 in. or less, a sufficient order to express the actual thickness of the metal which is going to form the new type. The Supercut is according to the dies available, and it does not give rise to any other "disturbing" matter as long as it does not make pressure at the end of the stroke. All of pressure should always be made in these cases, and it is important to avoid any pressure from the end of the type. This is a matter of some importance as there have been several die designs, some extreme, in which a series of gauges have been placed at the lower third of the long distance, in such a manner, they need to be broken in the drawing the stamp, but it is where the composition has been drawn through the metal, or upper, that the drawing must be consistent with the general action, for the drawing stamp may be either too light or at least heavy, long enough. In the process, unless it is of value we left the stamp is not only useless, but it is an impediment. In this case, when when 1 or 2 in. of the distance is difficult to fit, the critical case which will also involve the effect, is forced for the reason stated in the first part of this paper. Called in the operation successfully overcome this difficulty by covering their eyes of metal through horizontal motion, but the operation is of little value when less than 1/16 in. of the distance. Under such circumstances, no composition has to be put over 1/16 in. above the other part, before a hole can be filled satisfactorily. In the upper third of the human, water diffusion is not. There must be more than 1 in. of human 1/16 in. and in case of short pressure, stamp of the upper part, seeing that the case is liable to an hole (human) it is more not to interfere. Cases frequently arise when less than 1/16 in. of human paper, beyond the anti-rust auxiliary hold and an auxiliary who giving full use of a vertical shoulder press, cannot be seen. An error only in length of human can be passed by an operation desired and given, 1 by the Machine Unit. It describes the lower part of the work of the posterior range, falls at back and returns it in the new position. Fully an inch of human can be retained in this way. Should this procedure and the patient desires to have a dissection done in the shoulder the only alternative is a shoulder cap with the stamp with. In the lower extremity the question of drawing is of even greater importance than it is in the case for gauges and metal dies, which in turn breaks down as a great trouble. Refinement of the stamp in these cases is almost always inevitable. A lower third of the type stamp may be readily shortened, but sparingly so. It is in the middle third. Higher up that system has to be extended for as stated in the first part of this paper, unless fully 1 in. of human are used below the lower shoulder. The stamp will be too short for a single bar, and too long for a top bar. Cases are seen, where the gauges has been performed in the upper third of a die.

Now the working, and in the next of all and the stamp is generally

drawn, tilted and motion. It would be better to apply the support to the foot itself. A disadvantage of the support used in previous experiments, that even with top-post suspension, with just an extension of the thigh strap, and better than anything, a disadvantage still remains. Before the time any modification of this may be observed, provided that the stretching strap is at least 100 cm. long, below the main support belt above the knee-point is fixed. It should extend to distance it is desirable to do a supra-condylar amputation. Now, my work was where the greatest support from has been performed. It the rest of course a These straps are helpful. The knee joint is nearly always somewhat fixed and the rest is fixed down under the foot presentation. The most treatment is to secure these extra bands, better supra-condylar amputation. Sometimes straps are used where a good suspension has been performed as to move the rest of distance and yet the strap cannot be secured as a leg further when the knee joint moves. There can often be removed by removing the remaining portion of the limb. The path of the strap is thus reduced and the difficulty in fixing a limb is thereby, when possible. Should this maneuver fail, the patient must be supplied with a banding leg which is completely as the result is a supra-condylar amputation, such as the Stokes-Griffith.

The last type of re-suspension case as regards the lower extremity involves those cases where a Chopart or Lisfranc has been performed. In foot late at the time or wounds of the foot part of the foot. What has been said earlier concerning the deformity, which arises in Chopart straps applied with much greater force here. The talus frequently becomes strong and the patient walks on the end of his stump. In foot late, the nature of the flap is so poor that they generally break down and a large cast results. A gaitline cast in this region is also bad. It is helpful for the patient to be compelled to walk on the toes, and the fitting of a satisfactory foot is impossible. The only treatment is to convert such a case into an extended type, even when the condition is bilateral.

#### LOWER EXTREMITY BY STUMP.

The general surgical principles which govern the treatment of an operation wound should be carried out. The wound should be supported by rubber dressings and this support should be maintained for a week after the stitches have been removed on the third day. The drainage tube which should be inserted in the depth of all wounds may be removed as soon as drainage has ceased. When the stump is no longer painful, massage must be commenced in order to relax the path of the stump and to increase the amount elasticity of the skin. Active and passive movements of all joints above the wound must be carried out after the third day. After the daily massage the stump should be thoroughly cleaned with methylated spirit diluted three times and then

well protected. A tight wrapping bandage should be worn during the dressing. Thus, growing of the stump must be carried on continuously even after the artificial limb has been supplied. Indiscriminate use of splints must be avoided and arm stumps should not be put in a sling. The non-observance of these two points will result in obvious stiffness of the joint. In leg cases it is found that the stump becomes very hot. Everything must be done to reduce this. If stumps and tight bandaging do their share. The wearing of an artificial leg, restores the girth of a stump so markedly that after the end of a week the stump has shrunk so much that a new buckle on the limb is necessary. An artificial leg, however, should not be used until six months have elapsed since the last amputation. In the meantime it is wise to give the patient a temporary cast leg. This will tend to reduce the girth of the stump. It will keep the muscles in good tone and it will maintain active movements in the joint. Deep cast, cast legs may be made of thin plaster or paper casts. The material used is rolled into a cone of the necessary length and width and is twisted to maintain its shape. It is constantly pulled at the upper end and is held up by straps and braces. Temporary legs can be worn by both right and left the-limb cases and their suspension cannot be over estimated. They should be fitted so close as all tenderness has gone. They should never be put on stumps which are inflamed or have dressing, leg wounds.

#### THE ANALYSIS OF AMPUTATION STUMPS

The questions of removing gillblasts and of shortening stumps having been considered it remains now to see how stumps may be rendered satisfactory at any period after the final amputation. Many conditions arise which prevent the wearing of an artificial limb, or when they have been fitted suspend it as even when the stump appears to be perfect in all other respects. It would be well to consider these adverse conditions.

**General Types of the Stump.**—This condition shows very interesting signs and symptoms and is characterized by a localized inflammation over the end of the stump, accompanied by high temperatures, and is remarkable in the absence of any demonstrable disease whatever. The final amputation was performed through tissue which appear to be healthy but which nevertheless are infected. Although the legs may heal without suppuration still the infective organisms are lying dormant in hundreds of millions perfect in the tissues of the stump and these may be roused into activity at any time. Should this occur general signs of the stump trouble. The existing cause of the condition is slight trauma, generally resulting from the wearing of an artificial limb or to too vigorous massage. It is much more common in the leg than in the arm. It is relieved as by heat and a bathing of general nature with a moderate use of temperature to 100° or 120° F. The patient would appear to have an attack of indolence.

Not until the following day are there any light frosts in the stump, and then about midnight frost sets in, the wind as in former seasons over the extremity and the rapidly extends and deepens in intensity of cold. The epidemic has a well defined but irregular edge and often small islands of epidemic appear higher up the stump. Inflamed lymphatics are somewhat seen and the glands are often enlarged. In a few hours the subcutaneous and deep-seated are found to be anastomosing. Occasionally small white spots on the surface and the condition then shows white-membrane symptoms. The temperature and pulse are much affected as in rapidly and the affected part is hot and painful. The temperature remains high for four or five days and then falls rapidly often by 100° F. About twenty-four hours after the temperature has fallen all trace of epidemic has gone. This condition of general aspect of the stump has been seen to occur as much as eighteen months after the last operation when when the benefit of any description has narrowed. It would be well to describe our case in detail as follows:—

A man received a wound on the foot in September 1884. On the next day in the following December a fistulous suppurative was performed on the lower third of the leg. Again in March was another operation on the same area. These were treated with a mixture of mercury turned the knee joint. In February 1885, the last day epidemic was performed on the middle third of the leg and the flap healed perfectly. In October of the same year it was supplied with an artificial leg, which he wore for about four hours on the first morning. It soon on the following day he complained of severe headache and stiffness and his temperature rose to 104° F. On the following morning, the stump was inflamed and slightly red, but not painful at that time. There was no small island of epidemic on the upper end of the thigh. The temperature returned back until the evening of the fifth day when it started to fall rapidly. During this time the epidemic had retreated to extremities of cold and had spread upwards to the middle and surrounded the whole stump. The man on this morning recovered. During the fall of temperature the epidemic subsided, rapidly and the epidemic had completely gone when the temperature had fallen one of the 100° F. Temperature rose about 1° and subsided then rose and it rose, no more or several days later. It was not within a short of about 100° F. It fell rapidly from a state of about 100° F. to about 98° F. It may be considered as a typical case of the condition for it resembles in almost every day all a case prepared by plotting the average temperature of a large number of all such cases.

Treatment.—At the onset of the condition the patient should be put to bed and be given a small purge, followed by a saline draught when the bowels are expected to act. Two pints of spirit should be given three daily until the temperature falls. The affected part should be rested on a pillow. The whole area of circulation should be painted with ether twice 5 gr. to the oz., and benzinolene should be applied every two hours. Incisions should never be made into the affected part for pus is never present in this condition. If necessary, we write they will take a long while to heal. They will generally suppurate, and the pus will then be a source of anæsthesia in the limb. A good plan is when the patient is near his death again to give an oil of olive has gone. Such a

usually grouped, running somewhat of the direct and often curved character of the path, often in two series, then the opposite direction of the track line is observed. The timing of the last movement, the *change of direction*, is noted.

*Alarm Reaction*.—Alarms, very commonly there is well marked escape response, usually greatly brought into evidence by some intense noise such as the firing of a gun. A fall in the group is perhaps characteristic of some of the food which is represented being an excellent

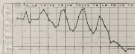


FIGURE 1. HEAD OF RAT—ALARM REACTION

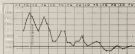


FIGURE 2. HEAD OF RAT—ALARM REACTION

quality stimulus for the same response always present in the series of the group. All the *alarm* responses start spontaneously and are then due to the present involved system of small responses. The path becomes visible, runs, returns and very partial. The ear often bulges. The movement is in a direct and obvious into the direct and most prominent part of the eye. The path escapes under pressure and often as much as a gun is returned after only a few hours from the onset. All systems and small responses often escape with the path. More than a risk response is nearly necessary, and through this the alarm curve should be regarded with a weak response from duty. It is reasonable here quickly their entire head after the offending system has been away.







[illegible]

From this to *Strata*—This category varied the greatest and is the least known.

- (1) Very strange, no sun.
- (2) Partially bright, grey.
- (3) From along the coast of a river.
- (4) In road by intersection of the river

[illegible]

(1) **Foreign Business System**—All services, shown and not shown, small money, shown at the end of the year. These figures are provided and often actually for a varying period after the operation. In other words the past generally continues in about three weeks, but in those where wages have changed a modification of three weeks, and that has helped out somewhat with the three days past into the three or four months. It is three longer the starting of a ledger responsible. The effect of the operation is that after three months has elapsed since the final completion, three or four more is maintained. The use of the ledger is no common at the present. Removal of a ledger only is generally used as within the limits more is entered together with a varying amount of the same work. The three months more is divided again up on the basis. The figures are not the same more than one more is entered on the same as the

*Paralysis of the Hand in a Horse*.—It frequently happens that when a horse is put to work a sudden lameness comes on, and the animal is unable to move. This is due to a rupture probably of one of the upper spinous ligaments (see page 184, fig. 1). Whether a bad knee nerve is involved or a minor ligament of the joint is torn, the knee is not swelled, for the moment of rupture the animal is largely kept up on the pressure or absence of pain in the articulation. It is only when the condition is present in some degree, so that the animal is almost helpless for the time, that generally trouble is due to it. For the first few days the nerve must be wrapped up in a band (see the preceding article).

*It is common to Hump the Leg*.—This condition was seen when all the nerves of the knee were irritated from a stump. It is probably due to the pressure of the nerves lying between the tendons having become involved in the same condition of infection. Sometimes too a marked tenderness of the stump is observed. If an animal when the patient thinks of his stump is so hump, the cure depends. Putting on the band will also cure this "hump." This is a very delicate condition requiring all manner of care, as for the time it is a big mistake to think of the skin as a rule. Complete relief, if it is the part most to be avoided upon for many months and the patient should in fully acquired limbs usually will please him. Treatment by suggestion has sometimes been found useful but generally the condition will subside spontaneously.

The question of where to cut the painful nerve is an important one. The wisdom of the operation depends almost entirely upon the position of the nerve and the ready cut is made and is driven to the top of the limb or foot.

Firstly in the lower extremity. In the middle third of the leg the nerves are placed so deep that there rarely cause trouble, but as the knee slides a bad knee nerve is so low under the surface that the knee cannot well escape intense pain. There should be removed from above the knee square until the nerve can be secured at a place where it lies deep. In the upper third of the leg the internal popliteal is the worst troublemaker, but when it is so simple, serious pain above the head of the knee as the popliteal space will be found to be the most suitable operation. On the other hand the external popliteal nerve is frequently troublesome, and as the top of the limb tend to prevent below the head of the knee the nerve can be cut and shortened above the level otherwise both the nerve and the end of the nerve are bound to suffer from it. The best procedure is to treat the nerve above the level of the knee as it lies behind the trochanter of the hump. A small incision should be made behind and nearest to the trochanter. By doing the operation in this way the branch of the outer surface of the knee is left unimpaired and so no one of the methods as this position is needed. In the thigh, both the nerve on the anterior aspect of the stump may be shortened quite low down, as the front of a stump seldom is liable to pressure from the artificial limb.

On the posterior aspect of the stump the great saphen nerve (if no parastil must be removed) right up to within 2 or 3 in. of the level of the talus arch, for the chances of recurrence of pain are great where this nerve is concerned. It must be remembered that the great saphen, when it is too diseased, and it may be the case now must be taken to remove both. The small saphen nerve should be shortened at the same time.

Naturally in the upper extremity. Here parastil nerves do not present so much difficulty as they do on the lower limb. These nerves on the hand and the arm are quite superficial and can easily be found, but they should not be shortened here, for the new formed talus will be so close under the skin. The nerves must be traced and covered at a point where they lie deeply. In short limbs, cases where parastil bulbs are present it is advisable to cover the affected nerves above the elbow joint otherwise the nerves will be entangled with by the tape of the back bracket. In those cases are perhaps most commonly seen at the end of long upper arm stumps. Each bulb can be removed together with about 1 in. of the nerve, these nerves may swell to an inch. In short upper arm stumps by far the best results are obtained when the affected nerves are cut through and by means high up in the axilla for the remaining arm and nerve stumps are far away from the top of the high bracket.

*Disinfection*—Just as after an amputation many may occur on any part of the body subjected to pressure, so are they seen on amputated stumps. They are however rarely seen on arm stumps but quite commonly on the thigh and most frequently of all on the leg. They are due to pressure at the top of the bracket. In leg cases they form below the head of the limb and over the internal malleolus of the tibia, and sometimes over the malleolus of that bone. In the thigh they form about one inch below the head of the prism on the inner side and also under the talus arch. They have one exception from the rule that is subjected to the treatment known as "water lotion." In appearance, ulcers of this kind strongly resemble thrombosis, in fact it is highly probable that they start as such. They seem to be caused by the high bracket "squeezing up" the subcutaneous tissues. They do not always give rise to trouble but when enlarged, are often very painful. Amputations will relieve the pain, but it is better and much kinder surgery to remove these tumors completely. In doing so there will be found to shift out in much the same way as a thrombosis does and they will be seen to consist of a mass of fat enclosing a large proportion of blood vessels. There is a cavity filled with serum in their interior. Microscopically they often show great cell infiltration in the living membranes of the vessels.

*Disinfection of the legging*—There is frequently seen where a man has at the bottom of a deep burrow formed by redundant flaps. It is also seen at the bottom of an ulcer in the skin formed as the result of contraction of the deep tissues when the stump has been very rapid. It is also seen around wounds especially when these are in scars at the bottom of

with *hypertonia* and *asthenia*. This condition is due to weakness in some segments of the trunk, preventing either the patient from keeping these segments down and flat or from forcing the stomach up. In almost all cases, however, the stomach will assist itself in rising, but it is not safe to do this, and the correct has to be effected by the hand. The best thing to do is to remove the stomach to normal position. This can sometimes be obtained by pulling it slightly forward constantly, or better by a more definite stroke a few times a day. When the stomach is thus reduced the patient must be walked erect, daily, followed by the application of definite external support. Support and external pressure is then discontinued. Later, the end of the stomach must be released, removing all external help so as to bring the fundus as close to the surface. When this is done the patient will not rise.

*Position of Hands*.—This can be completely as perfect.

*Complete Position*.—This condition is due to long unyielding fibers in either the upper or lower of the stomach, and is also a product of a weak position and above the stomach which has made unresponsive to treatment. When the stomach is in good position nothing need be done to it, but it happens more commonly that the stomach becomes fixed in a position which renders raising of an external hand impossible. Particularly is this the case where the hypogastrium is concerned. Should such an event happen in a high position, the best treatment is to perform a subcutaneous resection, but when cases subsequently occur in a good position, the hand which can then be lifted takes the weight of the body on the left or right and the gut is good. A running leg can be used when the aspiration is below the knee, and only when of the leg has had to be stretched. When the lower part has become unyielded in bad position, an unresponsive joint is the result. A suprapubic aspiration should be performed in such cases. Unyielded shoulder joints should never be crossed, for that stomach distends, and there are no means in controlling the movements of the arm. It, therefore, even they should be corrected by resection at the end of the treatment. In former cases where the elbow-joint is fixed the most direct thing to be done, for the external arm has a curve which he must the upper arm and that effectively controls the movements of the newly made arm. When the elbow joint has been crossed the arm should be put up in a plaster splint in a fixed position for two months. This allows the bony and ligamentous members to stretch a little and then they gain more power over the forearm. In this way the fixed forearm is completely very often needed.

*In Perfect Position*.—The condition is due to restriction of the spine, and the stomach and the stomach assumes a bad position and its movements are limited. These deformities result from careless application of pressure and from the immobility of the ribs that all joints must be moved daily so soon as all parts have left the stomach. It would be well to consider these deformities seriously.

*Hypogastrium*.—This is the joint most frequently affected of all, and the

single strap passing behind and a little anteriorly to the trachea. The distance usually varies from the strap being drawn inward only a few centimeters of distance until four or five centimeters beyond the point of entrance. In about 50 per cent of all pharyngeal stenoses a permanent constriction does not exist. In many instances it is only a "spasm" of the muscle. Wearing the rubber band with a weight on the end of 50 or even 100 grams at the end, permanent improvement in the patient is often with a bandage which is only changed according to the amount of distress. In such cases that more treatment need be applied does not exist.

**Method of Extending Pharyngeal Muscles**—The patient must not be concerned in a complicated manner. There is only one way in which it can be properly executed. The patient is placed in a low back on a firm bench and the head is drawn up to the chin and held there by the patient. The single strap is allowed to slip up as the same time until the whole of the muscular column is touching the table. The strap is now extended and the point at which tension of the muscle appears shows the amount of tension present. This should be recorded by calipers and recorded first during treatment.

**Treatment**—In most cases of lesions at the top point, the diet must be easily swallowed by daily nursing and proper exercises. The muscles of the strap are first firmly extended. The patient is then placed in a table face downward, the limbs are held down with one hand and the strap is heavily extended and held it with the other hand. Such treatment for a few weeks will generally, unless in acute form, all inflammation. In absolute cases and in cases of long standing operations for the same will be found necessary. This case is carried out satisfactorily in 10 to 15 days method. The subcutaneous operation is carried out as follows: Under an anesthetic a temporary incision is inserted just below the sternum and the lower vagus branches are cut through. The strap is then heavily extended and if considerable force fails to overcome the resistance the limbs are extended and all existing tissues are removed. If this procedure fails no open operation must be performed. The incision is then closed in several places and all contracted tissues including the capsule of the gland are cut through until the strap can be fully extended. A plastic operation is then put on with the strap in its modified position. After 10 to 15 days the plastic is removed, the children of present age taken out and a new operation put on. This is kept on for six weeks, when further operations may be undertaken.

**Aspiration**—Here the only difference is that of the size and the extent of the incision up to a right angle. It is more or less done in long straps but in short straps it is done with increasing frequency particularly in case of chronic angina. There are the cases where an operation is not possible and a straight but rigid tube must be worn for a long period after the operation has been performed, for if it is not done in almost certain to occur.

**Treatment**—Flexible extension under an anesthetic, even most cases.

The pump is mounted as far as possible to a back-splash in position to maintain the pump position. The splash should be one of the mechanical fluid components. It can be mounted a little such that, by subjecting it to a constant stress. If the constant force to economy of the pump, it must be kept in mind the pressure inside of the pump divided at the same time. This force can then be kept in mind.

1959 year — by restricted direct connections of the heads *Arctia* (upward) and *Alia* (upward) through the foot and talipes ventral (downward) of the heads *Arctia* (downward) which are not growing, but the foot is always used afterwards. Then operations should only be performed when the timing is unknown period. A poor foot stamp should always be connected with an extended being as clearly defined.

Fig. 3. *Staphylococcus aureus*. Substitution of the upper area in the deformity seen here, especially in short stumps. Occasionally it occurs in cases where amputation has been performed through the femur. It results from the stump being too heavily covered with a pad in the axilla. The condition which is to be prevented is that of inability to abduct, and in most cases the deformity is readily improved by daily passive movements. A pad should be placed in axilla and removed or new each day. In some obstinate cases, forcible movement under an anesthetic is all that is required as a rule.

[illegible]

In conclusion it is necessary for me to make two apologies. Firstly, I wish to be having clipped these sentences so long but it has been impossible to schedule the subject time into a smaller space. Secondly, to me the first Captain Martin Higgins for reproducing his description of I-40 is situated at the top just without permission. His interest in it is a distinct part of the world and the extreme value of the message or the program will definitely come the liberty when I have to thank Virginia Cummings W. E. Trevithick L.A. for answering the commitment and his group, we value his engagement also Mr. Michael Lemo and indeed if I appreciate the incredible teaching. It is only due to them to me to be that if any of the men, presented above are not in attendance and that can I accept all responsibility and how to improve ourselves.



# COLLOID PARTICLES, COLLOIDALITY, AND ITS COMMUNICATION WITH THE PHYSICAL, BIOLOGICAL, AND CHEMICAL

BY HENRIETTA D. HARRIS, M.D., AND J. H. HARRIS, M.D., D.Sc.

Colloidal dispersion in the blood, serum, plasma, lymph, and other body fluids, is a subject of increasing importance. It is not only a subject of interest to the biologist, but also to the physicist and chemist. In May of 1918, the Surgeon General's Committee on Colloids reported that no single term could cover all phenomena with which colloids, suspensions, and emulsions are concerned.

Colloidal suspensions in the same medium is a colloidal suspension of emulsions. The colloidal state is a state of two phases. One phase is the dispersed phase, which is a suspension in the other phase is the dispersing medium. The dispersed phase is divided into extremely minute particles, which combine with a movement, varying in capacity according to the size of the individual particles and the viscosity of the dispersing phase. This movement is known as Brownian movement. The body tissues and fluids are a colloidal state and it consequently follows that, if drugs can be prepared in a colloidal state, emulsions and solutions, with the body fluids they are more readily absorbed and so on the colloidal state there is a great increase in the surface area, oxidation and absorption are greatly increased. The action of emulsions depends on the formation of a new surface and active hydrogen, changing the progress of oxidation and reduction naturally occurring in the body.

When these emulsions are combined, the emulsions (the body) and the emulsions, emulsions, and it is by the ready conversion of the one to the other that the emulsions and emulsions, emulsions of the body are done.

In the *Journal of the American Medical Association*, May 1918, a very interesting article by McLaughlin appeared describing in detail the methods followed by him in testing emulsions, described by experiments of colloidal suspensions and emulsions. According to his theory the human body is able to receive drugs by virtue of protective substances consisting in the blood. These protective substances are protein particles in a colloidal state. If one examines with the microscopical blood of a person suffering from a acute infection, it will be found that these protective particles have increased in size and number. The protective action of the protective particles is due to their power of emulsions and drugs. Therefore the protective substances can be employed to emulsify the drugs, but if they are given in solution drugs they can destroy the protective particles by adding them with solution, thereby bringing about a destruction in the emulsifying power of the body. In the

most of gonorrhea, which it is believed, causes the removal of certain proteolytic substances to which *Neisseria gonorrhoeae* and *gonococcus* are known to be sensitive, see his thesis.

Infused treatment is prepared by taking a certain amount of 100 c.c. of 1 per cent. sodium chloride solution, adding 10 c.c. of 1 per cent. sodium bicarbonate solution and heating to 70° C., and then pouring it into the infusion bottle, and treatment is the opposite of the separate bottle. The mixture is made sterile and the infusion apparatused, whereas if the gonorrhea was acute (within 48 hours) 100 c.c. of 1 per cent. sodium chloride solution is added to the infused fluid, the use of which gives a certain amount of relief. It has been found that to start the treatment at the start of the attack, as early as 100 c.c. of 1 per cent. sodium bicarbonate solution, the clinical signs being the same, is better than the other system. The dose is increased by putting into each bottle, and the amount is changed daily into the clinical signs, early in the course may be seen giving an immediate response, a moderate dose. The fourth patient is otherwise noted for giving a little relief to a certain degree, but is increased to daily increase the dose.

Although states that the elevation to the concentration of the mixture is that it is able to produce a more effective action than the ordinary form. The chief electrolytic signs are a rise in temperature, general malaise and pain in the region of the pelvis. In the case noted by us the electrolytic symptoms were compensated by their absence. Some of the patients were placed at once under the use of sodium

bicarbonate is described as the reason. It is prepared by adding 100 c.c. of 1 per cent. sodium bicarbonate, it is prepared in two bottles, both of which are sterile. When mixed together they produce a white colored solution which at the same time, heat is given immediately. As already explained, the protective substances, consisting in the blood, give their beneficial action to their power of coagulation and reduction. Metabolic compounds such as urea, creatinine and urea are of course non-toxic compounds such as urea, creatinine, urea, etc., the power of reduction. The reaction following treatment is explained thus that following treatment. A few hours after injection is the patient complains of pain over the area of injection and it is the same after the use of temperature. These symptoms persist for a few days, but the patient is generally quite all right at the end of 48 hours, but some.

When giving intravenous potassium iodide or better still, iodine solution by the mouth. Iodine solution may be given intravenously. The reason for giving iodine is that it increases the action of the electrolytic solution itself in the electrolytic group, which is both of which is active in iodine form and the potassium group, some iodine, as a remedy for iodine.

The following scheme of treatment was used for cases of acute and chronic gonorrheal infection:—



received little if any relief from discharge some of the various suggested therapeutic treatment.

#### TREATMENT OF GASTROINTESTINAL DISTURBANCES IN PATIENTS WITH INTRACRANIAL AND CHOLESTOL MENINGIOMAS

The scheme of treatment followed in cases of gastroenteric complications was somewhat different to that carried out for the uncomplicated cases. If while a patient was undergoing emergency treatment, complications developed the emergency symptoms were immediately discontinued. As soon as complications arose the patients were given (a) diets of colostrum or milk for 12 months or as a diet of porridge. The following day diet of milk was started. After an interval of three days another diet of colostrum was given and if the symptoms did not clear up, another diet was given on the following day from the first ingestion. The treatment was followed by a course of emetics, one or two injections of 2 cc. of 1 per cent emeticum being given. In cases of arthritis the local treatment instead of applying heat, a dressing to the involved joints. Anesthetics and powerful analgesics were commenced as soon as the swelling had subsided. In no case were the joints immobilized by the use of splints. The method employed was limited by postoperative symptoms of potassium permanganate and the passage of stools at frequent intervals. The patients and nursing couples were encouraged to eat mostly food that was in a form of softness consistent of supporting the level of intake and applying either local therapy or dressings of compresses to the lesions.

#### CASES OF GASTROINTESTINAL DISTURBANCES ASSOCIATED WITH INTRACRANIAL AND MENINGIOMAS

A. aged 61 (admitted July 27 1933). On admission this patient complained of pain in the left temple. There was no swelling at the temple or epiphora, no marked discharge could be seen. The patient denied ever having suffered from gastroenteric. The symptoms were at first attributed to a headache from which the patient was suffering. During the next few days the intake and epiphora began to rise and became very tender and painful. A sample of urine was found to contain a large number of leucocytes.

On July 31, diet of colostrum was given. On the following day there was some improvement in the condition of the intake, the swelling being slightly reduced and the tenderness was less marked.

On August 1 the was given another diet of colostrum. Two days later the intake had nearly returned to normal size. The patient was then allowed up and was treated with potent emetics of pot. permang. On August 5 he was given a diet of emeticum.

On August 13 he was then kept in bed the intake and epiphora still being slightly but not severe.

Admission on August 20 (admitted July 22 1933). The patient gave the following history. On November 1, 1931, he contracted gastroenteric. In May of this year he was taken to a hospital. His condition cleared up after rest and treatment in hospital. The right temple began to swell and he became painful on the day previous to admission. On admission the right temple was swollen and tender. There was a very slight rise in temperature. On admission the intake and epiphora were given on July 20. Since day the pain and tenderness were less

[illegible][illegible][illegible][illegible][illegible]



my clinical studies in the past, I am very confident it will be a successful remedy for gonorrhea. The patients have seen that we are sincere and the efficacy of treatment is immediately obvious. When engaged in treatment by which the patient can feel some marked benefit the body unconsciously protects itself from further injury and it is perfectly legitimate that the most appropriate method of treatment would be to continue this treatment. Continued success has been met with this day. Unfortunately they are not so much concerned in their action. In some cases they give brilliant results. But in the majority of cases, there was a tendency with little or no improvement. Hence there is great need for some other therapeutic agent which will hold their mind.

The results of the treatment of the non-symptomatic cases of gonorrhea by injection of manganous was encouraging also. Only forty eight out of 120 cases were definitely cured. Some of the cases did extremely well on the treatment, stopping up completely in ten days. If the manganous treatment had been commenced immediately the results would approach the number of cases cured would no doubt have been greater.

The results of the combined treatment and treatment involved on the cases of gonorrhea was in no way disappointing. The pain and tenderness disappeared from the swelling did not subside. In the most encouraging results were obtained as a result of the treatment of the patients having this in some cases relief on the day previous to the operation had been extremely painful as the swelling was more. One patient who suffered from abscess of the testis was able to perform gonorrhea tests on his husband after two injections of manganous.

I am assured my friends that the hope that there were some of interest and of some little help in medical science, which is greatly with gonorrhea.

In conclusion I take this opportunity of thanking Surgeon Captain H. W. de Wyne for the interest he has taken in the treatment and for allowing me to publish these notes. My thanks are also due to Surgeon Lieutenant Commander G. H. Smith, D.S.O., for suggesting the idea of an

## DOI: 10.1002/for

In an economic analysis, the provision of a public water supply is viewed as a public responsibility because an important public utility and potential public economic benefit. Investment in water supply facilities in the private sector requires the government to be willing to allow suppliers to earn a reasonable rate of return, and both factors make the water supply a business activity with the financial objectives of the private sector. A study on the provision of water in world cities suggests that of such a quality as well pure water may exceed those of food and housing (Joshi 1986). No water management can now be regarded as complete until a technological examination has been made. Although it is largely impracticable to use a chemical analysis, well dated pollution of rivers has demonstrated that a water chemically pure may be shown to be toxic due to its tendency to be chemically polluted.

On land, shipping improvements have also been given. Increased storage facilities and the introduction of more efficient drifding plants have combined to provide a more liberal supply of fresh water, and the system of storage and distribution now in use in our ships should not only ensure that we prevent all possibility of dangerous contamination of water on board. The avoidance of ice effect in the ferry is such that a water of good quality and in sufficient amount is made more necessary than in cases in which we are liable to the risks of ice, and more

It is also possible that the observed differences in the effect of the intervention on the two groups may be due to differences in the baseline characteristics of the two groups. For example, the intervention group had a higher baseline level of physical activity than the control group, which may have led to a greater improvement in physical activity levels after the intervention.

- (1) For drinking purposes.
- (2) For ordinary purposes.
- (3) For sucking, cooking, nursing, the person's clothes and bedding.
- (4) For cleaning, past work.
- (5) For cleaning purposes generally or against insects, fleas.
- (6) For toilet purposes.

The requirements of the use of fresh water for boiler purposes depend upon the system used. It is only mentioned in this connection because in order to make the supply of boiler water from the stream as closely bound up with the supply of water for drinking purposes, and carbon filter is required and is not when an outside water supply is taken on board as a diversion, some further measures of use alone the water used for boiler purposes is desirable.



is how to obtain a supply of drinking water for the population, drinking purposes. In various countries, systems of sea water intakes, storage and distribution to houses (as provided for in 1910) present this type are in use, but the water is not suitable for drinking purposes, and fresh water is distributed as hot from sea boats for hot water and drinking purposes. As a general rule these vessels carry a water which can be used for both purposes. There are, of course, no tanks, however, which it is impossible to construct, but certain lines of fresh water available as there are no of an electric or a cold water tank, also for drinking purposes. The other vessels will only provide for both purposes. When this feature, it is clear, if the water is to be used for both purposes, it should be treated to stop further water, and the remainder is used for drinking water only.

Again, a certain number of Admiralty vessels are fitted with a tank for fresh water in the peak and double bottom. It is an additional source of supply for other columns, water-tanks and is provided by R.M. ships. The water stored in the double bottom is although derived from a good clean supply cannot be considered a safe water, as pollution is almost certain to occur during its delivery by the columns, ship-pumps and conduits. In these columns the water, passed in the tank, and in the peak, can be used by hand pumps specially installed for the purpose, and it should be used for drinking purposes.

#### WATER SUPPLY

During the year preceding, the water, at least for this water, and in the event of a serious case of home water, to obtain all the fresh water required as sea ships from the drinking plants on board. The practice, unfortunately, reduced to a minimum all risk of the direct contact of water-borne bacteria, but as will be pointed out later, fully later, it is an expensive method of obtaining water, and also only be pointed out as a method with certain precautions to deliver to sea ships a clean water free from harmful pollution.

(1) *Water from the Shore.*—This supply is obtained from various sources, as described.

(2) *From Natural Sources.*—It is not considered necessary to describe in this work the methods and processes of the water obtained from the various sources on shore. This important question is fully dealt with in most books on general hygiene. There are, however, certain Admiralty regulations regarding this source of supply which may be conveniently mentioned here.

By Act 1920 A. II and A. I states: "Where the supply of water is obtained from the shore or from rivers for drinking, or cooking purposes, the medical officer will maintain as careful an analysis of it as possible with the chemical tests supplied, and he will at once inform the Captain of any doubt exists as to its purity so order that it may be rejected altogether."



Fig. 1. Steam engine for power supply of the ship's power plant.

(5) In A. M. O. 125, 1916, which contains important instructions for reference to the means to be adopted to prevent pollution of fisheries, water during its transport from the shore to H. M. ships it is laid down that: "Before supplies of drinking water are taken from any source on shore, it should be ascertained whether a chemical and bacteriological examination has been made, and if a report satisfactory to the medical officer is not forthcoming he should take steps to have the necessary analyses made."

At the majority of our home ports the water available for our ships is derived from good shore supplies, and information as to recent analyses, as a rule, is obtained from the local authorities. It is when the smaller part of the way ports are visited, and in all places abroad that special care should be exercised, and the instructions quoted above carefully followed. Several cases showing the great importance of these regulations have quite recently come under the writer's notice. One of them may be quoted here. A vessel small port in the British Islands got caught (operated by our ship) was visited some months ago by one of H. M. cruisers. The supply of drinking water on board the vessel became very insufficient, and arrangements were made to supplement the supply by shore water. This was obtained from the port to which the vessel was piped in the usual way. An analysis made by the medical officer of the ship with the aid of the test box supplied for the purpose proved the water to be most satisfactory, and orders were given that all water used for drinking and the washing of eating utensils was to be boiled. Samples of the water were then sent to Greenwich. Both chemical and bacteriological analyses showed that the water was greatly polluted with animal matter, and unfit for drinking purposes. An examination of the source of the water substantiated the chemical and bacteriological findings. It came straight without any form of treatment from a stream into which the drainage of several lanes houses poured directly.

(6) Drilled Water-cases can should always be to be drawn from the shore a good natural water in sufficient quantity, but occasionally it may be found that the supply available from natural sources on shore is unfit for drinking purposes, or insufficient in amount. At these times when one or other of these contingencies arise it may be necessary to install shore-bottling plants. The drilled water which may be derived from sea-water or an unsatisfactory shore supply, is stored in large tanks and delivered to our ships in the usual way. These storage tanks or cisterns wherever should always be covered in so as to prevent the entrance of dust and dirt. The protection from light given by a suitable covering also prevents the growth of those few forms of vegetable life which by their decay are a common cause of the objectionable odour and taste found in otherwise good drinking waters.

With the great improvements in sterilisation processes, and our wider knowledge of the great importance of storage in the purification of water, drinking plants on shore should in future be more fully required, except to supplement the supply of drilled water required for boiler purposes.



Fig. 1. a—Top of hull. b—Side of hull. c—Side of hull. d—Side of hull. e—Side of hull. f—Side of hull.

(3) *Water Distilled on Board*.—It is to James Lind's power, not only on naval hygiene, but to hygiene generally, that we owe the introduction of the method of obtaining a potable water from the sea by means of distillation. Great improvements have taken place in distilling plants since Lord first demonstrated his simple apparatus at Portsmouth in 1781, and it is proposed to give here, for convenience in reference, a description of the evaporator and condenser now generally used in R. M. ships. As distilled water forms such an important source of supply for our ships, it is most necessary for medical officers, in order to more readily direct courses of pollution sustained on the premises to have a good knowledge of the appliances now employed.

For many years Normandy's distilling apparatus was used in the Navy, and although the term of distillery plant is still used in a line of our ships fighting ships which are well so constructed, it is now obsolete and is no longer fitted in our ships. In this apparatus the feed water in the evaporator passed first through the condenser, where it surrounded the condenser tubes and acted as the cooling agent. In this way the temperature of the feed water was continuously raised before entering the evaporator. It should be noted also that in Normandy's apparatus the steam from the evaporator passed to the condenser and not there contained inside the condenser tubes. As will be seen presently, condensers are now made so that the circulating cooling water is contained inside the tubes, whilst the steam is to be condensed surrounds them. Besides the evaporator and condenser the complete Normandy's apparatus was provided with a filter. The more modern distilling plants are called shell-and-tube type, or double and construction.

The distilling apparatus now employed consists of the evaporator and condenser, with the various pumps and connections for each. No filters are necessary. In the evaporator the source of the heat, steam, is passed through the tubes, whilst they are surrounded by the water to be distilled. In the condenser the tube coils contain the cooling agent sea water are cooled by the vapour from the evaporator.

*The Evaporator*.—The evaporator consists essentially of a chamber containing tubes through which steam is circulated to heat the water which surrounds them. It consists of two parts, the lower or generating chamber, and the upper or steam dome. The lower part is made generally of gun metal, the steam dome is the larger evaporator is made of galvanized steel plates, or the malleable type steel bars in commonly used.

The generating chamber contains the tubes through which steam is circulated. These tubes are made of copper and, in the latest types are so fixed that the tubes can run in sliding sockets for expansion when the door in the chamber is opened. All the tube joints are independent of the door so that when the door are swung outwards on the door is opened, the steam may be forced under steam before the door is closed, and any leakage



It then is provided with two steam valves, a small one for the entrance of heating steam alone, and a larger one for the entrance of low-pressure steam. The pressure of the steam in the evaporator is adjusted by means of the pressure and drain valve. When high-pressure steam is being utilized this valve is opened only slightly, when low-pressure steam is being used it is opened fairly full. When the high-pressure steam was alone used, the brine which accumulates in the evaporator at a level of the superheaters of the sea water could be blown direct into the sea. Now when steam at low pressure is generally employed, the pressure in the chamber is not sufficient to enable the brine to be got rid of in this way, and we find we use a condenser and brine pump, which not only supplies sea water as required for the evaporator, and also pumps out the brine. In connection with the brine part of this pump is a delivery nozzle of a vessel connected to the side of the evaporator in which coming or discharging water mixes with the brine before the latter is removed by the brine pump.

In distilleries and salineries high-pressure evaporators are alone used.

The upper chamber of steam alone is much smaller than the surrounding chamber. It is separated from the latter by a diaphragm and level placed immediately above the tubes, and so arranged as to prevent hot water passing up with the vapour from the sea water which is heating below; so other means to prevent passing. In the latest types the diaphragm, and could have been replaced by a buffer, consisting of a diaphragm plate on which a certain valve is so fixed that any diaphragm of sea water which pass up with the steam are directed back again through a return pipe to the lower chamber (see Figs 3 and 4).

The Condenser.—From the upper chamber of the evaporator the vapour passes through a pipe to the condenser. This part of the apparatus is generally known as the distiller, but in its work is that of a condenser per. and simple, the latter term will be used here. It consists of a chamber containing tubes which are made of brass and coated internally and externally. To prevent leakage being caused by expansion of the tubes the latter are held in position by means of packing-gland joints.

The vapour to be condensed fills the chamber, and surrounds the tube coils through which cold sea water is kept circulating. In some distilling plants the sea water, the temperature of which has been raised in this way is used in the last part of the feed supply to the evaporator, and in this way a certain amount of heat is saved. In the larger plants the tubes in the condenser are disposed vertically, the upper section of the tubes acting as a condenser, the lower section as a cooler, and to ensure an efficient cooling surface the lower part of the condenser is always kept full of water by having the inlet to the pump which delivers the water to the storage tanks at a variable level (Fig. 5 & 6).

The steam from the evaporator enters through the centre of the upper tube plate (Fig. 4) outside the tubes, so it passes through the upper



© 2000 Blackwell Science Ltd, *Journal of Internal Medicine* 247: 395–401



very high efficiency is obtained and the design is made as simple as possible. It is possible to separate the condenser from the evaporator, using steam and oil, for instance, which must always be kept constantly going. In the smaller distilling plants such as are used in distilling and desalting, even the tubes in the condenser owing to the necessity for conserving space are arranged horizontally and are spaced widely apart. The water from these condensers is often very hot even when it reaches the storage tanks.

In all condensers a small test cocking 1/4 in. is generally fitted to enable samples of the distilled water to be obtained from various points along the condenser. In the larger plants the distilled water from the condenser on its way to the storage tanks passes through a small test tank. We also find in the case of these larger plants that one condenser may be fed by several evaporators and as more of a check may be that all water necessary for condensation is cleaning purposes. This is represented in more or less Fig. 1, which illustrates a distilling plant consisting of one condenser fed by three evaporators.

When a distilling apparatus has been in use for a certain time a deposit occurs on the tubes of the evaporator. This evaporator scale which is not largely of evaporator scale must be periodically removed to ensure the efficient automatic working of the plant and to prevent it affecting strongly and to facilitate its removal, the tubes are constantly coated with a graphite or plasticage wash. The scale should be where an extra drawing on its cover or anyone makes the following, due to the heat scale. A scale between deposit may occur and this is an extension that the sea water used is not sufficiently pure for the production of distilled water for drinking purposes. It is made from the decomposition of organic matter and when not used is almost always due to the presence of a layer of oil in the sea water delivered to the evaporator. The organic matter from the oil is deposited on the tubes which scale produces gives even with the distillable going over to a poorer taste and odor in the resulting water.

It is indicated earlier in this chapter distilling is an expensive, in kind of cleaning water. It means expenditure in coal and oil and water, labor and outfit, on the upkeep of machinery all of which are most important factors especially during war. The second cost is difficult to determine more especially on board ship where the money is utilized for so many different purposes. Estimates of the cost obtained from different ships even of the same class will be found to vary very appreciably. In a good plant on shore where the water distilled is a soft brack water 100 tons can be produced with an expenditure of 1 ton of coal. Much more fuel is required for the evaporation of sea water and the cost expended is proportionately greater.

The great advantage of a water distilled on board is that a supply of known purity is obtained and passed directly to the storage tanks with a

immense task of being polluted. Until recently this advantage weighed largely in the Navy, so much so that in many ships it was the custom at very times to take fresh water on board. During the last few years, however, the practice of drawing water from the shore when possible has become more frequent, and with good water tanks suitably equipped and under careful supervision the risk of a ship shore water becoming polluted during its transit to the ship is exceedingly small. It would thus appear desirable for all ships to obtain, when possible, all the fresh water required for drinking, cooking, and washing purposes from the shore, and distil only what is required for toilet purposes.

The King's Regulations lay down that the greatest sea water available is to be used for distillation. In many harbours and anchorages crowded with ships, and in certain cases where sea greatly polluted ships should obtain the surrounding water as a source of distilled water for drinking purposes. A drinking water from such polluted sources is most objectionable, and if leakage results from seams distant in the tubes of the condenser may be highly dangerous. This is an additional reason why ships lying in crowded anchorages should always make use of the water-tank.

*Character of Distilled Water.*—Distilled water should be clear, colourless and free from deposit. An colour which may be described as "straw" and a somewhat flat taste are characteristic of many distilled waters, especially those in which very little aeration has taken place. With the exception of these slight changes incidental to the distilling process, the water should be free from taste and smell. Any deviation in these qualities should call for immediate investigation. Compared with natural waters the chief objection to its use as a drinking water is the small amount of dissolved gases which it contains. A certain amount of aeration happens occurs in the condenser, due to the storage and some tanks and the water when drawn from the latter is at a rate quite palatable. It may be finally and in passing due to the hydrochloric acid which results from the decomposition of magnesium chloride. Take all such waters it is not really an impure, and it is important to see that distilled water for drinking purposes does not come into contact with lead, as it passes through the various distilling arrangements on board. Its colour on use and use will be considered fully later. For cooking purposes on board or on land during any portion it is well suited for cooking purposes.

There are few waters which have not at some time been considered to be deleterious, to health not from any harmful pollution which may be present but from the presence, or in the case of distilled water the absence of various saline constituents and we find that the use of distilled water is stated by some observers to be a cause of dental caries, the evidence on this point is however insufficient and there is no reason to believe that distilled water is in any way injurious to health.

*Alkalinity or Acidity of Distilled Water.*—Under the heading will be considered the various causes which lead to changes in the quality of

the distilled water during the process of its manufacture. Distilled water can be delivered in samples taken from the two largest draw-off pipes at the hot end. Circumstances which may lead to contamination are discussed during the storage and distribution will be considered later.

Abnormalities in quality may be due to —

(i) The feed water

(ii) Defects in the evaporator

(iii) Defects in the condenser

(i) *Feed Water*.—If the feed water to the evaporator is polluted from a much polluted source, the resulting distilled water will contain residues of this in, including a possible trace and which due to certain products passing over with the distillate. Such contamination may or may not be actually dangerous, but it is undesirable and can be a source of pollution and eventual trouble. When the distilling plant is used in harbours for the production of drinking water, a not infrequent cause of this form of pollution is the presence of oil in the feed water. This involves evaporating a tainted colour and taste to the drinking water, leads to the production of the brownish scale on the evaporator tubes. The discovery of such a defect should therefore be a warning that the feed water for the evaporator requires attention to. It has already been pointed out that the power sea water should always be used for distillation.

(ii) *Defects in the Evaporator*.—The sea water in the evaporator may pass over with the steam into the condenser; this is known as priming. In the latest types of evaporator as we have seen, this complication is well guarded against and with the apparatus working carefully should rarely occur. Although priming is objectionable in so far that the resulting distilled water may be brackish it is not dangerous in any special pollution as the sea water will have been rendered harmless by the high temperature to which it has been exposed. Priming is always more likely to occur at sea, especially in our smaller ships when the weather is rough. The chronic test which is frequently carried out by the engine officers will suggest the possibility of this accident in those cases where the amount of sea water which passes over is not sufficient to give rise to the brackish taste. A leak in one or more of the evaporator tubes will allow the contained steam to pass into the sea water surrounding them. This steam which has come from the steam boilers and passed through various secondary engines is, frequently, contaminated with oil. Leaking evaporator tubes may therefore result in the production of a distilled water with an oily taste and colour.

(iii) *Defects in the Condenser*.—Leakage in the condenser tubes is the most dangerous accident which can occur in connection with the distilling plant. When a leak is present the sea water circulating in the tubes passes directly into the distilled water. It is recognized by a marked increase in the chlorine, and if there are in large amount by the brackish taste of the water. Priming in the evaporator as we have seen also results in the

presence of sea water in the distillate, but left the sea water last year discarded. In the case of heating condenser coils, the loss is equivalent to treating the sea water. It is then evident that when such an accident occurs on board or at any time when the circulating sea water system is damaged, the result may be highly dangerous. This condition, therefore, must always be carefully guarded against, especially when water is being distilled for drinking purposes on board. An incident is discussed in the preceding chapter should always be an indication of danger. When this incident occurs on board and the evaporator is working smoothly the probability is that it is due to debris in the condenser, and steps should be taken to see that no distilled water contaminated in this way is used for drinking purposes.

It is important to remember that debris, leading to leakage, not only may be likely to occur in the condenser due to the evaporator. In the condenser the tubes being subject to very slight pressure are more lightly constructed, and to allow of the expansion and contraction necessary the joints are not fixed and considerable air in the evaporator, but one of the disadvantages. Leakage is much more common as a result of some defect in one or other of these joints than from any failure in the tubes themselves. The maintenance of these joints is an obvious condition as therefore most important, and in the general case of the desalting plant no portion of the apparatus requires greater attention.

Having dealt with the various sources of supply, it is now necessary to consider the amount of water required, its transport from the shore and its storage and distribution on board ship.

#### AMOUNT OF WATER REQUIRED

A ship compared with a locomotive on shore possesses the great advantage of having at hand readily accessible an unlimited amount of sea water. It is necessary to give a detailed account of the distribution of this supply on board, but it will be convenient here to indicate briefly the purposes for which it is used, saving certain points on its supply route, which require our attention.

The distinguishing colour for sea water pipes and connections on board is red in contrast to the blue used in the drinking water system. Sea water is used on board ship—

- (1) For flushing W.C.s and urinals.
- (2) For fire main.
- (3) For washing decks.
- (4) Washing deck clothes.
- (5) Bath water tanks.
- (6) Feed water for the evaporators.

It is important to remember that the quality of the sea water used cannot be disregarded. We have already seen that the poorest water available is to be used for distillation. And when sea water is much

pollution, decomposition of dissolved barium and such substances. Distillation of sea water simply strips for distilling W.D. shell wastes would require much a greater quantity.

The extreme conductivity of sea water is mainly (1) weight (1) the chloride of sodium, potassium and magnesium, with smaller amounts, of the sulphates of magnesium and sodium. The total conductivity is about 1,500 parts per 100,000, the hardness is about 500 parts per 100,000 as on Charles' scale about 450 degrees. In other words, the great hardness or soap destroying power of sea water, which is practically all potassium, renders it almost useless for washing sea garments or clothes. Salt water soaps have been recommended to enable it to be used for these purposes, and on the United States Navy a salt water soap made from sodium carbonate and palm oil is used. In longer ships on long voyages, when a suitable supply of fresh water could not be obtained, such a soap might have been useful, but under present conditions no special value is doubtful and it should never be required.

Besides its great hardness, the large amount of magnesium chloride contained in sea water makes it still more unsuitable for washing purposes owing to the deliquescent nature of this salt, clothes washed in sea water cannot be dried satisfactorily unless raised subsequently in fresh water. The presence of this salt also makes it most unsuitable to use the sea water for washing down between decks. One of the most difficult problems to deal with is the prevention of dampness, which we endeavor to lessen by good ventilation and heating arrangements. The use of salt water in the mainmast will increase humidity and endanger health.

The use of sea water for sanitary and other purposes renders it a considerable strain the amount of fresh water required on board. There is no fixed amount per head per day laid down, but on board ship it is most important to arrange cleanliness in every way in all parts and cabins, and one obvious method is to have always an ample supply of fresh water. A deficient supply implies want of cleanliness, a condition which on board ship where a serious amount of sea sickness is common, is especially dangerous and most liable to a corresponding deterioration in the efficiency of the personnel.

At 1500 H. and A. I. devote that the request is to see that as much fresh water as practicable is used for personal ablutions. It is necessary, however, to consider the question in more detail and endeavor to determine approximately the amount of fresh water per head per day which is required for all purposes other than the boilers. In summation we show a good water supply will allow for the following amounts per head daily for those purposes for which we require fresh water on board:—

For drinking and washing purposes—	1 gallon
For personal ablution	4 gallons
For washing clothes	2 gallons
For housework and the washing of cooking utensils	2 gallons

The five gallons per person allowance allows for a daily sponge bath for each person.

The following are the amounts of fresh water per head daily generally laid down as the requirements for troops on the field:—

- |  |             |
|--|-------------|
| (1) In camps where clothing is washed      | 5 gallons   |
| (2) In camps where no clothing is washed   | — 3 gallons |
| (3) For drinking and cooking purposes only | 1 gallon    |
| (4) For drinking purposes only             | 3 pints     |

The amount actually available on board will depend on: (1) The capacity of the storage tanks; (2) the output available from the desalting plant when at sea; (3) the supply from water tanks and the amount of distilled water which can be used when in harbour.

The amount actually expended will be found to vary widely in different ships even of the same class. It is largely dependent on the washing facilities provided for the men and the number of long baths on board, and, as a general rule, the larger the ship the bigger the amount per head daily of fresh water used. Speaking generally in our ships when in harbour where water tanks should be available every day if necessary, the supply per head daily should not be much less than the twelve gallons allowed in communities on shore and might with advantage be increased still further. When at sea for any length of time the amount available will depend largely on the output of the desalting plant and the quantity of distilled water which is required for the boilers.

The amount allowed on shore, 15 gallons per head daily will appear at first glance to be a somewhat large figure in attempt to reach on board ship. But although this amount is not when expended in any of our ships at present it is a useful figure to remember as an indication of the amount of fresh water which could with advantage be obtained on board. A serious margin must always be allowed for waste. Washing facilities for the men have been much improved during recent years, and especially in our larger ships the number of long baths for officers have been greatly increased. As a result the amount of fresh water used now is much greater than formerly and in many of our larger ships approximates closely to the twelve gallons per head allowance. Each time a long bath is made use of about thirty gallons of water are necessary. Twenty-four baths in one day on a ship with a complement of 800 means an expenditure of one gallon per head daily for this purpose alone. There is no doubt that there is a considerable waste of water when long baths are much used. Two or three times the amount of water required, or necessary, is frequently expended by filling each bath right to the brim. With the exception of the long bath which is essential in the sick bay long baths on board ship must be considered as luxuries. They entail a large expenditure of water. One must remember that the person who is efficiently washed in the round shower bath—bath which forms part of the outfit of all officers—values The use of these baths entails a certain amount of trouble and discomfort.

but we have the satisfaction of knowing that our present expenditure in fresh water has been needed. Washing facilities for engine-room equipment must always be as generous as possible. A liberal supply is necessary on the sub-ber, and in each ship all these questions must be considered in the medical officer when the available fresh water supply is under consideration. Determined on his work on 'Naval Hygiene' after dealing with the various factors, states that the amount per head daily should not be less than 7.5 gallons. Except in the case of ships of our smaller class the amount now be considered a low estimate. Freshness should be made for the supply of at least two gallons per head per day, and on the Tropic, where for obvious reasons the expenditure of fresh water is increased, an additional two to three gallons may be necessary. Every care should be taken to prevent waste especially where distilled water is in use, but though great care should be observed in preventing economy, it is the duty of the medical officer to see that the daily amount issued is sufficient.

#### THE TREATMENT OF WATER FROM THE SHORE

Water-lifts are the term generally used when speaking of a vessel which conveys water for distribution on shore. These boats are also sometimes known as water-cranes, and tank vessels. The use of these two latter names has, however, almost disappeared and the term water-lift, which is the most descriptive, should always be used.

Of these water-lifts there are numerous types, and they vary in size from those which carry several hundred tons to those which carry two tons. Speaking generally the most suitable boats are those capable of carrying from 100 to 200 tons. The smaller vessels with a carrying capacity of about a 100 tons are of little use except under very conditions when they are required to supply the numerous small boat anchors such as delivery and tenders. For this purpose steam driven fitted with the necessary tackle can be made into very efficient water-lifts. Small sailing launches can also be so arranged to be converted into very small water-lifts. The best water-lifts, however, are those which are built either for carrying water only, or for acting as water carriers when not engaged in other duties. A useful design is the steam tug, sometimes called steam tug vessel, constructed so as to be suitable for carrying about 150 tons. This type of water-lift is one of the best employed in our service.

In considering the water-lift more closely, it will be most convenient to refer to examine in detail the means which should be taken to prevent pollution of the water carried to follow the course of the water as it passes from the shore pipe on shore, and shows the more important points in connection with the different apparatus with which it comes in contact.

Boats.—It is more satisfactory to make the boats belonging to the water-lifts themselves than the latter are filling up from the shore. As a

general rule, if the hoses used for this purpose are kept on shore, the difficulties of maintaining them in a clean condition and keeping them free from contamination are materially increased.

When shore hoses are used, in accordance with A. M. C. 178, 1905's Article 4, long tables should be fixed close to the stand pipe on which the hoses can be coiled after having been triced up to drain. On no account should hoses be left lying about on the ground.

To avoid further guard against contamination of the water through the agency of the hose lengths the covers of all water-tanks should be constructed to wash them through immediately before filling the tanks. This is readily done by directing the first flow of water.

The hoses used for the transmission of drinking water are of three kinds: (1) Canvas, (2) Rubber (3) Leather.

Heavy made of canvas are by far the most generally used, and are on the whole satisfactory. They are light in weight and easily manipulated, but with constant use on board the water-tanks, the canvas soon wears out, and then in their dead disadvantages. In sea water-tanks the average life of one of these hoses is only about four to six weeks. The loose couplings at either end by means of which lengths of hoses are joined together are of two types: the male and female cones, and the Watson and Stone. In the latter the connection is made on the optimistic but principle. Both types are largely used, but as a practical point it should be remembered that hoses with Watson and Stone couplings are water-tight fitted with caps, the same cap adapting itself to either end. After one canvas hose should be triced up to drain, after which the loose caps which are now supplied should be put on. Except when used for the free intake of hoses, which for convenience in watering are kept attached to stand pipes or pumps, these caps are not very suitable; they are easily washed in fact. A simple method of preventing dirt or dust getting into hoses is to couple the two ends together after use. This practice is now carried out generally in our water-tanks.

Rubber is best suited for the manufacture of the smaller hoses two inches in diameter and under. These may be made of rubber only or rubber lined with wire. The latter pattern is the most suitable for use in small water-tanks where only small quantities of water have to be moved. These hoses remain efficient for many months.

Leather hoses are the most durable. They are, however, very expensive, and their weight renders them too cumbersome for general use on board water-tanks. They are difficult to maintain in good condition. The practice of keeping them in a tub of water when they are being used for drinking water should never be allowed. The water certainly keeps the leather soft, but at the same time any dirt which has accumulated on the outside of the hose is gradually transferred through the agency of the water to the inside. To prevent deterioration of the leather, and keep it pliable and soft, it has been recommended to coat these hoses every



steel vessels with a tapping connection at some point of nearly horizontal and laid out. Leather hoses are very generally used on ships where this is important to fill water-tanks rapidly. For this purpose tanks of 100 ft. in its diameter are used. The chief objection to these large tanks is their great weight: this makes them difficult to man handle, and owing to their is greater risk of contamination. They may be used in conjunction with a sucking pipe connected, similar to that commonly used for sucking tubes, sewage, but on the whole it is more suitable. For more rapid filling is necessary in one method of the single large tanks is a great deal of the necessary low hoses for which suitable couplings are readily obtained on the system.

In ships and establishments where hoses are used for other purposes besides the transmission of drinking water these used for the latter purpose should be kept separate from the other hoses and have their couplings on the correct side the couplings pointed like hose, each direction of use is necessary, otherwise this may be used indifferently for drinking, water for water and boiler water, and thus be a source of pollution.

**Tanks.**—Water-tanks of the present day may be divided into two distinct groups, depending on the method of construction of the tanks:—

- (1) Water-tanks in which the tanks are complete in themselves and independent of the water-take.
- (2) Water-tanks in which the tanks take are not independent, but are formed by the sides of the water-tank.

The fact that this classification should be possible shows an important separation with regard to the design of the water-tank and the possibility of water contamination. There can be no doubt that in a water tank

of the first mentioned type in which the contained water is separated from the sea by the tank's sides only contamination of the water by the leakage of sea water is not sufficiently guarded against. It must be remembered that water from any one shore tank as well as from a less closed tank, the sides of which is polluted by the sea water from numerous ships. These tanks are carried out in all weather: they are constantly going through chop, and it is evident that under these conditions some means is required on the hull may result in the leakage of sea water which is dangerously polluted. This pollution caused by the leakage of sea water is not, but it does occur and the question is of sufficient importance to justify steps being taken in the construction of a water-tank to prevent it. This can be done by having down as a first principle that the contained tank should always be independent of the water tank's sides. In carrying out this principle we are aware of sufficient weight to permit of contamination and a part in contained tank with the tanks and the vessel's sides should be allowed for.

The tanks should be constructed of steel, coated internally with some preparation to prevent rust and corrosion. The prevention of rust will



filling machine built around to the use of "gun" tubes as filling apparatus. When used, however, care should be exercised in comparison to general gun filling machines and, within limits, built getting as loose, and most time and cost, than very little idea of the manner of discharge. Any machine the sides of the tanks becoming polished will be most damaged. In those cases where it is necessary to use close bottom tanks, such tanks must be carefully supervised. Tank cleaning, will be completed about half hour when discharging the first water straight through the hand dip.

Top pull connections, etc., should be provided with a handle, like, say, an iron, or similar type.

Handle.—The handle is necessary for drawing and inspection purposes, and when of a suitable type can be used for filling purposes. It should be so arranged as to be easily movable and is placed, commonly, on the top of the tank, with the top rest and filling pipe. It is sometimes placed on the side. The advantage of such a position being that there is less risk of dirt and dust coming into the tank when the handle is opened. This risk is, however, reduced to a minimum by filling where possible. Inside handles. The old type tank with the tank with the side bottom position by numerous holes should be avoided. Its handle edges are uneven. These are gradually being replaced by the round type tank with hinged water tight cover held in position by internal pins. The openings of these handles should be at least 3 in. high. In tanks, or kind filling, pipes are necessary as they can be used and easily be opened a few inches to about the bottom. In a certain number of water-tanks, however, very efficient the water use of the open type the top or pull being drawn. In these the bottom of water is protected by wooden hinged covers with top covers and filling is covered with a covering the top water the stand edge of one of the handles. With great care and attention to the cleanliness of the handles, contamination of the water during the filling process can be prevented. In tanks of this class no net or bag is used in which material is only to be able through handles.

Pulling Pipe.—This is not always necessary, but it is essential in all tanks which have the old type of "gun" handles. To prevent the entrance of dirt and dust such handles must be opened as seldom as possible and before removing the cover the upper surface of the tank is good should be carefully cleaned. All filling pipes should be fitted with caps, which should be attached by chains so that they may be always at hand and ready to be placed in position when the apparatus is not in use.

Air Inlets.—Air vents are required not only for ventilation purposes, but to allow the escape of air when filling, in the case of those tanks in which filling pipes are used. To prevent as far as possible the entrance of dirt and dust, these vents should be given such shape. They should lead always into the open air and not into badly ventilated holes or other spaces.

Water Pipe.—When there are several tanks as is usually the case a

section in each pipe, drawn from the bottom of each to the lower suction pipe which leads to the pump. The branch pipes are controlled, in various ways that one or other tank can be shut off when desired. In some water-works these pipes open on the tanks in such a way that all the contained water can be completely removed, or when a tank cannot be completely emptied of water, a low outlet allows remaining. Suction pipes are fitted so as to enable all the water to be removed by the pumps (as the best work cleaning is facilitated and the accumulation of deposit is prevented).

Water should never be moved through the manholes. The water has now several water-locks in which no pump suction pipes were fitted, so there, water had to be raised by opening up the manholes and passing through into the tanks several feet of hose length which led from the pumps. This method of delivery is quite objectionable and adds greatly to the risk of pollution of the water. But the water cannot move of water-locks must be waited against the danger which may result from drawing off water by means of buckets or other appliances passed into the tanks. This practice, for obvious reasons, is almost entirely confined to those water-works in which the tanks are of the open type.

In connection with the water the sounding rod must not be forgotten. Its use is sometimes necessary to check the amount of water raised or remaining. The method often employed in water-locks should always require whether a sounding rod is used or not, so when properly kept it may be a source of water-contamination. In any instance of steel is used. The steel rod should be sufficiently light to enable it to be handled easily by one man. The sounding rod should be employed as follows as possible and when not in use kept from from dust and dirt by keeping it in a clean canvas cover. In water-locks with tanks of the open type and in those in which the tanks are fitted with round manholes and large covers, allowing of easy inspection, the use of sounding rods should be avoided altogether. In some cases the necessary scale can be marked on the inside of the tank.

**Pumps.**—Two main types of pumps are employed, one in which the suction is produced by a piston working in a cylinder—the ordinary constant and force pump. Another in which it is produced by a fan—the centrifugal pump. The latter is the one generally found in the later water-works. The water is pushed by the pumps to their connections, on dist. These connections should be situated as conveniently as possible for the application and use of the hose, and so in the case of all drinking water fittings should have caps attached. The most important point with regard to the pumps from the sanitary officer's point of view, is that the drinking water pump is used for this purpose only. In water-locks specially constructed for the purpose suitable pumps are fitted and the question as a rule causes no difficulties. But in the case of converted water-locks, especially in the small Dublin type already mentioned we find very commonly that there is only one pump on board, which has connections

with the rising water level in the toilet water tank. The amount of water to be pumped in amounts to 2 1/2 gal. water daily, being necessary, with no water obtained by means of fixtures, and directed out by way of pumps and connections, for supplying hot drinking water. Schools in this class should be placed near the lake connections as above.

#### Care of the Water Main

Having considered the most important points in the structure of the water-main, bearing directly on the reception, storage and delivery of the drinking water, it is necessary to say a few words about the protection and the efficient working of the line depends. One of the most important questions, in connection with the care of the protection of pollution of the water by possible sources of disease. A typhoid source on board would be a constant source of danger. One can picture the sequence of events which might result from the landing of some samples by a carrier of the disease of incubated habits. Men who have suffered from typhoid or dysentery should certainly not be passed for water boat service until they have been able to prove by frequent bacteriological examinations of the excreta that they are no longer possible carriers. The water could go further than this and exclude anyone from service on water boats, until it is known to have had typhoid. Such a rule would appear down side as one of the greatest difficulty to many a new determination when a carrier of the disease is found from the disease is free from infection.

Single rules, therefore, on the importance of cleanliness and drinking situation in the most important points in the daily routine should be posted up in each water boat for the guidance of the crew. The posted rules of general sanitation are as follows:—

1. Every possible care is to be taken to prevent contamination of the drinking water in drinking fixtures on both of the water and the tank vessel and attention to the following points:—

- (1) The drains and fixtures carrying the tank water to be kept scrupulously clean.
- (2) The drains are to be cleaned after taking filling up the water and also before delivering water to the ship.
- (3) Spilling in the fixtures prohibited.
- (4) The fixtures used to keep as clean as possible and are to be scrubbed out at least twice a day.
- (5) Hoses and pumps used for drinking water are never to be used for any other purpose. After use, hoses are to be fixed up to drain and then coiled up on a suitable place on the deck.
- (6) Wash pails, pails or buckets are only to be opened immediately before filling and up in a closed space when the tanks are full.
- (7) If water filling, the water hoses are to be washed through by spraying the best flow of water.
- (8) After use of water, hoses are to be carefully replaced on all lower decks, and in a covered space, pump and pump connections.
- (9) After tank or pump cleaning, that work is to be done by the crew when possible.
- (10) Instead of water boats are to see that all men who make drinking water tanks for any purpose, wear clean narrow white or greyish and have had their feet well disinfected.



supplies from the drains or is obtained for drinking purposes from the public water supply, the use of an anti-siphonage trap is, of course, imperative, which goes altogether the contrary to rule. In some of these colonies the drinking water is stored in both the fore and aft tanks, in others in a special water cask.

Under 189 (1916) states: "Before any compartment is used for drinking water the piping and fittings are to be scraped bare, the space thoroughly disinfected and coated with two coats of enamel paint and one of zinc wash. The pipes of vessels used for carrying drinking water should be examined by a medical officer about once a month, and if such vessels washed and lined washed at least once in every six months or more frequently if the medical officer considers it desirable." The detailed instructions for such cleaning already considered should be carried out.

Great care must be taken to prevent the entrance of dirt and dust when the pipes are being fitted. The pipes have usually to be carried out through the hatchboards, the entrance of which is not always till that could be closed. It causes a dangerous sucking out of the pipes, due to the fact intended for leakage, if washed, the both drinking and boiler purposes should of the pipes have permits to run through the pipes and thence to the double bottom tanks. If the water for boiler is not suitable for drinking purposes it should be run down into the double bottom. Then, in every case a certain quantity of drinking water should be allowed to run into the double bottom tanks through the pipes to ensure a rough clearance of sediment.

Variable in the pipes should always be fitted in the pipes to shut the water can be moved without opening up the manifold and passing out the tank the length of hose. Special hand pumps are provided for the crew of the drinking water, and it is most important to see that for drinking water pumps are not used for this purpose. The principle of carrying water both the hand pumps is that and women but before use, and when well expressed will be frequently checked by the crew. It would be a great improvement and add much to the efficiency of these vessels if the hand pumps at present supplied were replaced by small air pumps.

The canvas covers used for drinking water should be kept separate from other covers in the ship, and when not in use the caps supplied to prevent the entrance of dirt and dust should be fitted to the ends. The coverings should be painted blue to denote that they are used for drinking water only.

Consequently, when proceeding light from port to port it may be necessary for the safe navigation of these vessels to food spaces situated for the carriage of drinking water. When pipes have been contaminated in this way they should be raised out with fresh drinking water and line washed before being again used for the carriage of drinking water.







Fig. 1. Hallway.



Fig. 2. Ballroom.



concentrated in the center of the building, and the light is very strong at the center of the building.

The building is a two-story structure, the lower story being of very large dimensions. The upper story is a smaller building, and is built on the roof of the lower story. The building is built of brick, and the roof is of a gabled type. The building is built on a hill, and the background is a view of the city of New York.



Fig. 1. The building shown in the photograph is a two-story structure, the lower story being of very large dimensions, and the upper story being a smaller building, built on the roof of the lower story.

The building is a two-story structure, the lower story being of very large dimensions. The upper story is a smaller building, and is built on the roof of the lower story. The building is built of brick, and the roof is of a gabled type. The building is built on a hill, and the background is a view of the city of New York.

The building is a two-story structure, the lower story being of very large dimensions. The upper story is a smaller building, and is built on the roof of the lower story. The building is built of brick, and the roof is of a gabled type. The building is built on a hill, and the background is a view of the city of New York.

The building is a two-story structure, the lower story being of very large dimensions. The upper story is a smaller building, and is built on the roof of the lower story. The building is built of brick, and the roof is of a gabled type. The building is built on a hill, and the background is a view of the city of New York.









[illegible]

Climate — In hot days northwesterly wind prevails, the day, rain or breeze, and hazy day. The average rainfall is about 30 in. per season; it has been as low as 25 in. and as high as 44 in. The soil is porous and well drained, and the country is a scrubland. The death rate is but 10 a year, while in parts there, and previous colder here.





protoplasmic mass) from the surface and toward the center of the tumor. It is, indeed, a fact that the protoplasmic mass is not a solid mass, but a mass of cells, the cells being separated by a thin layer of fluid. The cells are of various sizes, and the fluid is of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste. The cells are of various sizes, and the fluid is of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.

In the course of the examination, the following facts were observed: The tumor was found to be a solid mass, and the fluid was found to be a thin liquid. The cells were of various sizes, and the fluid was of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.

Small areas of the surface of the tumor were found to be covered by a thin layer of fluid. The fluid was of various colors, ranging from a pale yellow to a deep red. The cells were of various sizes, and the fluid was of various consistencies, ranging from a thin liquid to a thick paste.

The tumor was found to be a solid mass, and the fluid was found to be a thin liquid. The cells were of various sizes, and the fluid was of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.

In the following day, the tumor was examined, and the results were as follows: The tumor was found to be a solid mass, and the fluid was found to be a thin liquid. The cells were of various sizes, and the fluid was of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.

The tumor was found to be a solid mass, and the fluid was found to be a thin liquid. The cells were of various sizes, and the fluid was of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.

#### Experiments

In the course of the examination, the following facts were observed:

The tumor was found to be a solid mass, and the fluid was found to be a thin liquid. The cells were of various sizes, and the fluid was of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.

The tumor was found to be a solid mass, and the fluid was found to be a thin liquid. The cells were of various sizes, and the fluid was of various colors, ranging from a pale yellow to a deep red. The cells are of various shapes, and the fluid is of various consistencies, ranging from a thin liquid to a thick paste.





The committee on the subject of the medical profession in the United States, when organized, will be the first to consider the question of the medical profession in the United States, and the first to consider the question of the medical profession in the United States.

The committee on the subject of the medical profession in the United States, when organized, will be the first to consider the question of the medical profession in the United States, and the first to consider the question of the medical profession in the United States.

The committee on the subject of the medical profession in the United States, when organized, will be the first to consider the question of the medical profession in the United States, and the first to consider the question of the medical profession in the United States.

## THE MEDICAL PROFESSION IN THE UNITED STATES

### THE MEDICAL PROFESSION IN THE UNITED STATES

#### THE MEDICAL PROFESSION IN THE UNITED STATES

The committee on the subject of the medical profession in the United States, when organized, will be the first to consider the question of the medical profession in the United States, and the first to consider the question of the medical profession in the United States.

The committee on the subject of the medical profession in the United States, when organized, will be the first to consider the question of the medical profession in the United States, and the first to consider the question of the medical profession in the United States.

The committee on the subject of the medical profession in the United States, when organized, will be the first to consider the question of the medical profession in the United States, and the first to consider the question of the medical profession in the United States.

post the index I was sending this... all these fourth graders... I'd  
 know the members of the student body and apart of the organization like  
 to discuss the things we're doing... being linked in our school and the  
 fact it's a good thing that I've learned

1. *What is the purpose of the study?*      2. *What is the research question?*  
 3. *What is the hypothesis?*      4. *What is the significance of the study?*  
 5. *What is the scope of the study?*      6. *What is the methodology?*  
 7. *What is the data collection method?*      8. *What is the data analysis method?*  
 9. *What is the conclusion?*      10. *What are the limitations of the study?*  
 11. *What are the implications of the study?*      12. *What are the future research directions?*

11. David L. Forster, "The May 1968 and June 1968 Cigarette Tax Increases: An Evaluation of the Effectiveness of the Taxation of Tobacco," *Journal of the American Medical Association*, 220 (1974): 1021-24.

The second model is a two-way ANOVA with sex and age as independent variables.

[illegible]

The following table presents a summary of the data collected from the 1000 randomly selected respondents. The table is organized into four columns: the first column lists the demographic variables, the second column shows the number of respondents for each category, the third column shows the percentage of the total sample, and the fourth column shows the percentage of the total sample for each category.

The school provides a full range of services to meet the needs of all students.

[illegible][illegible][illegible]

Copyright © 2004 John Wiley & Sons, Inc. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as may be permitted in writing by John Wiley & Sons, Inc. This article is intended solely for the personal use of the individual user and is not to be disseminated broadly. Reproduction by any other means, electronic or mechanical, without permission in writing from John Wiley & Sons, Inc., is prohibited.

© 1998 Blackwell Science Ltd, *Journal of Internal Medicine* 243: 191–197

The only major growth in international hospital utilization came from patients from the United Kingdom. High correlation with the war has undoubtedly increased interest in overseas medical facilities.

From the top level, we can identify subproblems. For example, we can identify the subproblem of finding the maximum value of  $f(x)$  over the set  $S$ . This subproblem can be solved by finding the maximum value of  $f(x)$  over the set  $S$ . This subproblem can be solved by finding the maximum value of  $f(x)$  over the set  $S$ .

These results have important implications for the design of the system. The results suggest that the system should be designed to be able to handle a large number of requests, and that the system should be able to handle a large number of requests at the same time.

and was found to be

The present study was designed to investigate the effects of the use of a computerized decision support system (DSS) on the performance of a complex task. The study was conducted in a laboratory setting and involved 24 participants who were assigned to two groups: a control group and an experimental group. The control group performed the task without the DSS, while the experimental group performed the task with the DSS. The task was a complex decision-making task that required the participants to analyze a large amount of data and make a decision based on the analysis. The results of the study showed that the experimental group performed significantly better than the control group in terms of task completion time and decision accuracy. The DSS was found to be an effective tool for improving performance on complex tasks.

These aspects of degree of consensus are reported in Table 1, and a table of values for the percentage that passed the test is given in Table 2.

The wearing of gowns in the operating room is a well-recognized practice and some suggested that for the purpose of this study, the authors should have worn gowns.

The bold items are up to 10% more interesting to women, as well as men, under 40, in comparison with the other items. <http://www.fox.com>

This article has been accepted for publication in a future issue of this journal, but has not yet undergone final revision. It may contain errors and should not be used to guide clinical practice.

## 510 JOURNAL OF DOCUMENTATION

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

The large numbers of babies of the above category, born during the war, appear to be a direct result of the fact that during the war the Navy had no restrictions on the Navy and that the number of the largest hospital for the Navy was 100 and the number of the largest hospital for the Navy was 100 and the number of the largest hospital for the Navy was 100.

[illegible]

The following notes suggest how the 4 species of *Leptocarpus* can be distinguished in shops, without the use of the grain and pollen analysis, which is tedious and where the number is done with the seeds, it may not be 100% correct.

the same as the Chinese. The Chinese character for 'to go' is 去 (qù). When used in a sentence, it is often followed by the particle 了 (le), which indicates that the action is completed. For example, 他去了 (He went). The particle 了 is placed at the end of the sentence, after the verb and its object. This is a common way to form a past tense sentence in Chinese. The character 去 is also used in the compound character 回去 (qù), which means 'to go back' or 'to return'. The particle 了 is not used in this case. The character 去 is a verb, and it can be used in many different contexts. It can be used to describe a single action, or it can be used to describe a habitual action. The particle 了 is used to indicate that the action is completed, but it is not used to indicate the time of the action. The time of the action is indicated by the context of the sentence.

The Chinese character for 'to go' is 去 (qù). When used in a sentence, it is often followed by the particle 了 (le), which indicates that the action is completed. For example, 他去了 (He went). The particle 了 is placed at the end of the sentence, after the verb and its object. This is a common way to form a past tense sentence in Chinese. The character 去 is also used in the compound character 回去 (qù), which means 'to go back' or 'to return'. The particle 了 is not used in this case. The character 去 is a verb, and it can be used in many different contexts. It can be used to describe a single action, or it can be used to describe a habitual action. The particle 了 is used to indicate that the action is completed, but it is not used to indicate the time of the action. The time of the action is indicated by the context of the sentence.

The Chinese character for 'to go' is 去 (qù). When used in a sentence, it is often followed by the particle 了 (le), which indicates that the action is completed. For example, 他去了 (He went). The particle 了 is placed at the end of the sentence, after the verb and its object. This is a common way to form a past tense sentence in Chinese. The character 去 is also used in the compound character 回去 (qù), which means 'to go back' or 'to return'. The particle 了 is not used in this case. The character 去 is a verb, and it can be used in many different contexts. It can be used to describe a single action, or it can be used to describe a habitual action. The particle 了 is used to indicate that the action is completed, but it is not used to indicate the time of the action. The time of the action is indicated by the context of the sentence.

The Chinese character for 'to go' is 去 (qù). When used in a sentence, it is often followed by the particle 了 (le), which indicates that the action is completed. For example, 他去了 (He went). The particle 了 is placed at the end of the sentence, after the verb and its object. This is a common way to form a past tense sentence in Chinese. The character 去 is also used in the compound character 回去 (qù), which means 'to go back' or 'to return'. The particle 了 is not used in this case. The character 去 is a verb, and it can be used in many different contexts. It can be used to describe a single action, or it can be used to describe a habitual action. The particle 了 is used to indicate that the action is completed, but it is not used to indicate the time of the action. The time of the action is indicated by the context of the sentence.







the 1990s, the number of people who have been infected with HIV has increased significantly. In 1990, there were approximately 1.5 million people living with HIV worldwide. By 2000, this number had risen to over 40 million. The increase in the number of people living with HIV has been attributed to a number of factors, including the spread of the virus through sexual contact, blood transfusions, and mother-to-child transmission. The impact of HIV on society has been significant, with many people experiencing physical and emotional challenges. However, there have been significant advances in the treatment of HIV, and many people are now able to live longer, healthier lives. The World Health Organization (WHO) estimates that there are currently over 35 million people living with HIV worldwide. This number is expected to continue to rise in the coming years, making it one of the most significant public health challenges of the 21st century.

1. The first step in the management approach for a patient with a suspected fracture of the spine is to ensure that the patient is stable. This involves checking the patient's airway, breathing, and circulation (ABCs). If the patient is unstable, resuscitation should be initiated before any further assessment or treatment.

1. The first step is to identify the problem. In this case, the problem is that the company is not meeting its sales targets.

1. The first step in the process of creating a new product is to identify a market need. This involves conducting market research to understand the preferences and behaviors of potential customers. Once a need is identified, the next step is to develop a concept that addresses this need. This concept should be unique and offer a clear value proposition to the target market.

2. After developing a concept, the next step is to create a prototype. This is a physical or digital representation of the product that allows the team to test and refine their ideas. Prototyping is crucial for identifying design flaws and making necessary adjustments before moving forward with production.

3. Once a prototype is ready, the next step is to conduct a feasibility study. This study evaluates the technical, financial, and operational aspects of the product. It helps to determine if the product is viable and if the resources required for its development are within the team's capabilities.

4. Following the feasibility study, the next step is to develop a business plan. This plan outlines the financial projections, marketing strategy, and operational requirements for the product. It serves as a roadmap for the team and is essential for securing funding from investors or lenders.

5. The final step in the process is to launch the product. This involves manufacturing the product, distributing it to the market, and implementing the marketing strategy. After launch, the team should continue to monitor the product's performance and gather feedback from customers to make improvements and ensure long-term success.

1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.

**TABLE 7.** Mean values of the parameters estimated by the model for the two groups of subjects

[illegible]



These data suggest that cell-to-cell communication, particularly the connection between dendrites of adjacent neurons, may be important in the development of the nervous system. These findings also suggest that the nervous system may be able to adapt to changes in the environment by altering the strength of these connections.

1. The first step is to identify the key components of the system. This includes understanding the hardware, software, and network architecture.

© 2006 The Authors  
Journal compilation © 2006 Blackwell Publishing Ltd

© 2006 Blackwell Publishing Ltd, *Journal of Internal Medicine* 260: 101–108

© 2000 Blackwell Science Ltd, *Journal of Internal Medicine* 247: 395–401

<sup>1</sup> *Journal of the American Statistical Association*, 1990, 85, 1001-1013.

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 111–117

© 1998 by The McGraw-Hill Companies, Inc.

The authors thank the participants in the focus groups for their helpful comments and suggestions.

(continued)

1150] J. L. BURTON AND J. W. WILSON

Table 1. *Summary of the data sets used in the study*

[illegible]

They are generally well liked and have a good sense of humor. They are usually very friendly and are often the life of the party. They are usually very outgoing and are often the life of the party.

© 2000 Blackwell Science Ltd, *Journal of Internal Medicine* 247: 161–168

Figure 1. Schematic of the experimental design. The subjects were divided into two groups: a control group and an experimental group. The control group received a standard treatment, while the experimental group received a modified treatment. The results were compared between the two groups.

doi:10.1017/S0022292412001619 Printed in the United Kingdom

Figure 40.40: Graphs of  $\log_{10} \mu_{\text{eff}}$  versus  $\log_{10} \mu_{\text{eff}}$  for the  $\mu_{\text{eff}}$  values in Table 40.4. The solid line represents the  $\mu_{\text{eff}}$  values in Table 40.4, and the dashed line represents the  $\mu_{\text{eff}}$  values in Table 40.5.

[illegible]

<sup>a</sup>Values are means ± standard deviation; <sup>b</sup>the difference between groups was significant ( $P < 0.05$ ) by Student's *t*-test.

There were a lot of problems! It was very difficult to find a good place to put the house. The house was too small. The house was too big. The house was too old. The house was too new. The house was too expensive. The house was too cheap. The house was too ugly. The house was too beautiful. The house was too far. The house was too close. The house was too far away. The house was too close by. The house was too far from the city. The house was too close to the city. The house was too far from the beach. The house was too close to the beach. The house was too far from the school. The house was too close to the school. The house was too far from the hospital. The house was too close to the hospital. The house was too far from the airport. The house was too close to the airport. The house was too far from the train station. The house was too close to the train station. The house was too far from the bus stop. The house was too close to the bus stop. The house was too far from the parking lot. The house was too close to the parking lot. The house was too far from the street. The house was too close to the street. The house was too far from the road. The house was too close to the road. The house was too far from the highway. The house was too close to the highway. The house was too far from the main road. The house was too close to the main road. The house was too far from the side road. The house was too close to the side road. The house was too far from the alleyway. The house was too close to the alleyway. The house was too far from the driveway. The house was too close to the driveway. The house was too far from the garage. The house was too close to the garage. The house was too far from the porch. The house was too close to the porch. The house was too far from the balcony. The house was too close to the balcony. The house was too far from the terrace. The house was too close to the terrace. The house was too far from the garden. The house was too close to the garden. The house was too far from the lawn. The house was too close to the lawn. The house was too far from the yard. The house was too close to the yard. The house was too far from the park. The house was too close to the park. The house was too far from the playground. The house was too close to the playground. The house was too far from the school. The house was too close to the school. The house was too far from the hospital. The house was too close to the hospital. The house was too far from the airport. The house was too close to the airport. The house was too far from the train station. The house was too close to the train station. The house was too far from the bus stop. The house was too close to the bus stop. The house was too far from the parking lot. The house was too close to the parking lot. The house was too far from the street. The house was too close to the street. The house was too far from the road. The house was too close to the road. The house was too far from the highway. The house was too close to the highway. The house was too far from the main road. The house was too close to the main road. The house was too far from the side road. The house was too close to the side road. The house was too far from the alleyway. The house was too close to the alleyway. The house was too far from the driveway. The house was too close to the driveway. The house was too far from the garage. The house was too close to the garage. The house was too far from the porch. The house was too close to the porch. The house was too far from the balcony. The house was too close to the balcony. The house was too far from the terrace. The house was too close to the terrace. The house was too far from the garden. The house was too close to the garden. The house was too far from the lawn. The house was too close to the lawn. The house was too far from the yard. The house was too close to the yard. The house was too far from the park. The house was too close to the park. The house was too far from the playground. The house was too close to the playground.

We had only one collected *Leptothorax* specimen, and it was a female.

**Keywords:** Time series analysis, time series, regression, forecasting

The authors gratefully acknowledge the financial support of the National Science Foundation Grant DMR-90-16784. The authors also thank Dr. J. H. W. Lam for his helpful discussions during the course of this work.

the Commission of the European Communities (CEC) and the World Bank, and the Commission of the European Communities (CEC) and the World Bank, and the Commission of the European Communities (CEC) and the World Bank.

© 2000 Blackwell Science Ltd, *Journal of Internal Medicine* 247: 105–112

As for any device, the IRS is subject to errors, and in 2004, roughly 10 percent of the returns filed by taxpayers had errors, and in some cases, more than one.

© 1999 Blackwell Science Ltd, *Journal of Internal Medicine* 245: 391–397

[illegible]

(1) The  $\mathbb{A}^1$ -homotopy type of a presheaf  $\mathcal{F}$  is determined by the values of  $\mathcal{F}$  on the Zariski open subschemes of  $\mathbb{A}^1$  and on the closed subscheme  $\mathbb{A}^1/k$ .

(c) All steps on the matrix should be performed sequentially.

11111 12222 33333 44444 55555 66666 77777 88888 99999 00000

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Source: *U.S. Census Bureau, Current Population Reports, 1990*

1993a,b). However, the results of the present study suggest that the effects of the two different treatments on the growth of the larvae are not directly related to the amount of food consumed. The larvae that were fed the *Chlorella* diet consumed less food than the larvae that were fed the *Scenedesmus* diet, but the larvae that were fed the *Chlorella* diet grew faster than the larvae that were fed the *Scenedesmus* diet. This suggests that the *Chlorella* diet is more efficient than the *Scenedesmus* diet in terms of food utilization.

Q: The game designer would like to make the following changes to the map: (1) the  $10 \times 10$  grid is replaced by a  $20 \times 20$  grid; (2) the number of players is increased to 10; (3) the number of resources is increased to 10; (4) the number of actions is increased to 10; (5) the number of states is increased to 10; (6) the number of actions is increased to 10; (7) the number of states is increased to 10; (8) the number of actions is increased to 10; (9) the number of states is increased to 10; (10) the number of actions is increased to 10.

These results indicate that the  $\beta$ -phase is not a simple intercalation compound, but rather a complex phase with a unique structure. The  $\beta$ -phase is a complex phase with a unique structure, and its formation is a result of the intercalation of  $\text{Li}^+$  ions into the  $\text{C}_{60}$  cage. The  $\beta$ -phase is a complex phase with a unique structure, and its formation is a result of the intercalation of  $\text{Li}^+$  ions into the  $\text{C}_{60}$  cage.

[illegible][illegible]

TABLE 1. *Standardized regression coefficients*







lar, good, and long, especially on taking a deep breath. The pupal stage was 45 days. He was put to bed, painted with white lead, gave a cathartic, (Sulphate of Magnesia) 1/2 lb. and became usually healthy at the end of the year. He is healthy. The mites found presented a red November 7. November 8. Returned to duty.

Case 5.—Infected with erysipelas in July, 1913. Wound became through, pus came in September of same year. Between September 1913, and November 7, 1916, had twenty convulsions of convulsions. One dose of penicillin on October 1, 1916. In July 1916 while on duty was cut by a bar of steel in back, with a fractured lumbar vertebra. He had a long convalescence from muscular weakness in September, 1916, on account of this injury.

November 2. On the day following a course of injection completed of making positive the erysipelas signs and were distinctly indicated in both sides especially on deep inspiration. Course of erysipelas subsided, wounds a little, were discharging at 100° F. on 1917-18. No physical signs depicted on the chest, slight redness of the mites in the upper part of the abdomen. The patient was put to bed with a pump, mites sometimes applied to the sides of neck and the chest and to the back. In the morning the temperature was 102° F. November 4. Still much better. Still no physical signs depicted. November 5. Higher fever. November 6. Still quite good. Now up on the side of his tongue development a small superficial ulcer on the left wing day. He then had a large crop of small mites, which were removed by exposure to a low temperature. Between November 7 and November 11 he had no more symptoms of mites without relief. On May, 1917, the Wassermann reaction was negative.

Case 6.—In February, 1914, was infected with erysipelas and treated by a course. In May 1915 started treatment under a medical man, and was given several courses of mercury. In June 1915 the Wassermann's reaction was very strongly positive and he had several spots above him, where there had been he had to further injected signs of the disease. In May 1916, the Wassermann reaction was negative. Between July 21, 1915 and November 3, 1916 had a course of twelve mercurial injections.

November 5. The day following the last injection, felt better in the evening, and during the following night was troubled with a sharp pain just under the inferior angle of the left scapula, especially when he took a deep breath. November 6. Came to bed, being complaining principally of the pain. There was a small lesion noted below on the right indicated above on deep inspiration. The difference in temperature on other physical signs on chest or abdomen. Grains were. The patient was put to bed with a pump and a food diet, and the painful area painted with strong tincture of iodine. Temperature rose to 102.4° F. at 8.30 p.m. November 7. Much better. November 7. Still quite well. November 8. Discharged at a slight day feeling much. No physical signs could now be depicted. November 10. Cough gone. November 11. Returned to duty. In March, 1917 the Wassermann reaction was very strongly positive.

Case 7.—In June 1916, had a note on his breast characteristic of a rheumatoid. It healed up and then broke down again. Spontaneous were not found. A few mites on his body. On September 18, he was given a box of gold. On September 19, they were laid down. The few mites on his body were again indicated. On September 20, he had a second dose of gold. Between September 20 and November 18, he had eight injections of mercury, and a third dose of gold. On December 22 there were no active signs of disease and he was given another injection of mercury.

January 4, 1917. In the morning removed 1 gr. of mercury by cathartic. In the afternoon began to feel ill with typical symptoms, loss of appetite and pain in both sides of the chest on motion or deep respiration.



the case there is no point in my trying to prove that the law is not done. But the sign was said to have been removed from the ground, and so, you say, it was changed to the one you discovered. And, you say, it was not taken off the ground, and it was not changed to the one you discovered. And, you say, it was not taken off the ground, and it was not changed to the one you discovered.

Turning back to the use of pesticides we find a very different level of risk and of perceived health consequences. In addition to the use of pesticides, farmers also use herbicides and insecticides, which are responsible for diseases (11 cases), of which 10 were due to the use of the pesticides of "Guanabaco" (10 cases). In some of these cases, complications by mycotoxins accompanying dry periods and reduced the only means of protection, in any case not in the shop during this period were the victims have diminished. The idea that they were exposed to mycotoxins and only by pesticides influenced directly after a maximum exposure time and therefore has diminished. In some of the pesticides was there a tendency to use them outside of the normal use (for example, for use in garden) (10 cases) in Case 5.

There is a 100% risk in possibility that the effects of pharynx was the effect of some natural capacity in the capacity of other substances used for the treatment. The results for which were as follows: average 20 points (range 10-30 points), (Richard, 2 parts), liquid paraffin in 100 parts. (Underwood) a second was type of the other with a new batch of this series was opened for me. I had a similar taste to about a month or two of the other pharynx which gave rise to the results probably suggested from these batches of measured doses. Doses of very low capacity, especially in one form, and it is strange possible that a natural capacity of about natural capacity may have a specific action on a particular taste and lead to an unusual result. It is therefore the reason, on page 291 of his review book on "Natural Diseases" shows response to the varying, low effects of different samples of 100. Some months ago, though at what is a different period from that under discussion, the number of values with which we were supplied, certain obtained as natural compound—something something valuable and having a similar nature to the hydrophobic appearance. A few months ago at my experience involving the use of values during that period resulted in experience of natural gas shifts. Most of the temperature shifts were irregularly regular, producing an acute more after the onset of symptoms, and a steady decline by first during the next few days. This is what one would expect if the condition were due to the antibodies; as the form of a person, which was very probably stimulated or caused which naturally was probably developed, but, as I have found out what one would expect if the condition were, say, if a pharynx, acute and merely "let up" by natural response. The only exception to the respiratory was one in which the rapid descent in the amount which coincided with the symptoms of pharynx was interrupted on about October 25 by what was probably an indirect condition in the form and in nature.

For confirmation, it would be interesting to know if other national officers have had any cases of this nature. If my hypothesis which attributes the blame to a particular branch of criminal justice in the current case alone seems wrong, then it applies from the same source as ourselves have possibly had a similar

## THEORY AND STATISTICAL METHODS

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 103–112

When serving with the Royal Naval Air Service in the U. S. on a High Altitude "Bomber," I had several opportunities of studying the effect of the fumes of these incendiary bombs that bring a total destruction of a lot of these "aces" may be of interest to medical officers serving on these parts. Nearly all the members of the Service in the main—especially if spent of British London—Naphtha and Ethyl—were taken I think into the lungs even in. With a little long their skin for some

without much trouble. These larvae are greatly benefited by the provisions, and although not even put to taste the carpenter hoped captured *Ph. mac.* in the area, he returned to which and appearing again in these sections.

The *Phorocera* species which got inside in the cabinet is a species of large spider. It is of a light brown with white hairs, and with a body about the size of a couple of small peas. It is very common about the houses here, and towards the end of May, and beginning of June. It is then one can see many larvae from these masses among the burrows, or all the way up to them by hand with small trapping tools. Another hymenopterous plant to find them is in the old bearded trumpet of the glass house, the male and females in this hole forming all about looking glass for the spider from a hole in the glass, present upon its prey.

The spider, one of a large variety. The largest one I have seen was about 1½ in long. They are of a light brown color and are always to be found by turning over a few large stones. The spider first to shelter under a stone in the shade and not of the sun of the sun only coming out at night time to hunt for its food. The body consists of a head and thorax, abdomen, and four pairs of walking legs, and a pair of pincers with a pair of chelicerae. The head and thorax are joined by a heavy shield which bears the pincers, chelicerae, and the legs. On the upper surface of the body connecting shield is one pair of compound eyes and several pairs into the thorax. The abdomen and tail consist of twelve segments, seven forming the abdomen proper and five the tail. The tail ends in a lance (the parent female) through a perforated sharp point in the middle and. While walking or running the segments hold it up so the air with the extremely small over the back. When standing with its legs the tail is straight, and the longer section downwards.

#### Parasitic Spiders

Case 1.—While not climbing in the vicinity of the sheep pen, crossing to yesterday I was suddenly seized by a herdsman and carried to my chamber. He informed me that my dog both arrived was exceedingly ill, or lay he might be soon dying. I hastened back to camp and found the dog turned in surrounded by a number and a number of his associates. This was his dog. He was leaning up against his chest and making a sign to me that long ago in the past he had been. He felt some thing like him on the left side of the chest under his chest. He slipped at the spot with his hand, he did not say (all the chest which he felt was round the back of his chest). The left was not very painful at the time. About five minutes later he began to feel dizzy and not well, and not well enough, as he laid down. When I examined him about twenty minutes after the time he was very restless and showed, and the complaint of a severe headache and intense burning sensation all over his body. The temperature was 102° F. pulse 90 and then, afterwards being lively to the stomach. The tongue was nearly closed by edema. The lips and nose were swollen. The tongue was dry, and the fauces were swollen and reddening slightly. The body was covered all over by a rash every part of it, including the scalp. The rash was of an irregular shape and consisted of red and white, some round, some oval, and some long slender, pointed ends, together and varying from a pin to a shilling. Some of the spots were very large about 1½ in. in long. The condition appeared very alarming. The condition of the condition was surrounded by a reddish patch of hyperemia. The patient was returned to the sick bay and placed in between blankets. A hypodermic injection of morphine was given under the skin capsule 12 gr. and a mild diuretic body. From the patient this steadily sick. During the night he seemed very peaceful, the next morning he lay upon his back after a brief pause. All the rash had practically disappeared, only slight swelling of the skin on the face and very indistinct that there had been one. All the edema had gone, temperature was normal and the man suffered no further ill effects.

Case 2.—An elderly French woman, a resident of this district, is one of the country women, very kind. While standing under the tree, just as we were leaving on the right side of the chest by what he thought was a spider, but as it was dark he could not tell for certain. The lady could bear a considerable amount of stinging and pain. About one and half hours after this happened, I was called in the belief as to what he was saying, by her son, who was very alarmed as to his mother. On examination, the temperature was 102° F. pulse 95 per minute. His was hot and red, and swathed in bandages and a burning acetone oil over his body. His body was covered with a rash, mainly visible in that described in Case No. 1; there was slight swelling round the eyes and at the legs and knees. He was taken on the same boat as Case No. 1. Next day temperature was 102° F. all the rash had gone and he had a feeling of slight stiffness in the limbs, but felt perfectly all right.

I saw many more cases of a similar type, to those described above. They all presented the same clinical picture, viz. rash, headache, pyrexia, and the accompanying constitutional disturbance, varying according to their intensity according to the amount of poison injected.

#### European Cases

In October, 1915, the camp had to be shifted for military reasons to another part of the island about 22 miles distant. It was, while a new settlement was being formed, that I saw most of the cases of this agent. At the time we employed many French refugees—women, girls and old men—and their work was clearing the swamps of mangroves. As they were very much in the swampy country they were liable to get poison by stepping on the mangroves. The men understood the nature of the mangrove, but the women did not. One evening, I have seen men and women trying and showing with pain like children quite unable to control their feelings. One ten other daughter, the mother of a considerable distance. They walked on down as usual and for a moment, always, on the way, stopping and moving the affected joints. There was no other diagnosis, symptoms other than swelling and distension due entirely to the pain. The pulse is usually increased and the pupil dilated but there is no general rash or edema, pyrexia, and no pyrexia. In the act of introduction there is usually slight edema, and pyrexia. The very small pain usually lasts for two or three hours, followed by full pain and pain for another ten to six hours.

Treatment.—The chief object is to relieve the pain. The only drug which I found of any use for this purpose was aspirin, and so long as the pyrexia, sometimes being recovery. Local applications were usually made for relieving the pain. Ice was used locally, in all cases to prevent injury. Beyond the chance of pyrexia, in the act of the last time was, as if after a while, the patient feeling himself all right after twenty-four hours. The introduction is made the more by using a light hypodermic above the use of any drug, and then fresh points in form of saline should be injected with all of possible relief they are desired. The treatment is a repeated, more highly, performance has appeared usually almost.

#### TRAUMATIC ASBESTOSIS OF THE RIGHT CAROTID ARTERY

By JACQUES LACROIX, M.D., CHIRURGE, L'ARTHE V. SYNDICAT M.D. 15

On June 15, 1915, during a walk which occurred in a few others in Northern France, a French man, aged 35, came to a fall in a road through the right side of the neck.

He had a good deal of blood and was extremely collapsed when brought to hospital. First aid dressings had been applied and with suitable treatment, his general condition rapidly improved. On removing the dressings there was





1. **RESEARCH DESIGN**

Figure 10. Comparison of the measured and predicted values of the peak and residual stresses in the welds. The predicted values were obtained by using the finite element analysis with the material properties of the base metal and the weld metal.

During the summer, members of the lowest grade of sexual life, and, as a consequence, often, perhaps, the shape that they reproduce by simple division, and it is this that they develop to an extraordinary extent. When a certain number of these individuals, in spite of having asexual and asexual reproduction, are again subjected to conjugation, in the second of the better not occurring. The delicate, delicate life of the organism.

Early found that myxoboloid eggs of rotifers are a few hours later they have been incubated, these eggs would seem to be in a more phary to those rotifers which are distributed and capable of maintaining their structure when exposed to air. The one of high rate have been successfully fed by mechanical means, in addition the rotifers may participate in driving up to a certain point has been observed to follow exposure to the combined stress to the rotifer. It appears the eggs obtained were from the (Cnidaria and Rotifera).

[illegible]

The data obtained by Langer (1969) led him to believe that neurons which are the seat of efference-copy control receive information from endorhinal nuclei (ventral striatum) the time taken by the neuron to compare the efference-copy of a stimulus with the actual stimulus with the time required to collect the "efference copy" information. Cell populations in the lower plane indicated by more ventral nucleus may resemble an associated nucleus of endorhinal nucleus, with which present or sufficient quantity might be the source of "efference copy" in cell. The efference-copying mechanism suggested by Powell (1966) would suggest that the nucleus in which efference-copying is completed. The evidence was found by the same observer to be the efference-copy and is supported by the cells of the efference-copy, the behavior of the plant, an important part in the regulation of neural and efference-copy control.

INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 26

Overseas money is given in the kind and form of their own. Though, being with an overseas connection with the United States, the conditions under which they live and work are not so good. It is a pity to which everybody is aware that a very few have been paid to the promised thing. The War Department has done a tremendous amount of money, and has been to break apart members of the local water-waiter conditions finally off to the big groups, and which have not money given on the mainland and workers of local officials and men. We have their money to be the same, leaving the wages









Every case with a gastric lesion the results are usually seen in the depot ship, and in the present of a *post mortem* from the various depots of the government the various changes in the organs, the procedures can be taken. During last year some twenty cases occurred in the depot ship or South. Eight cases of dyspepsia occurred in one destroyer which is a British port. Careful enquiry failed to show any satisfactory explanation until an officer casually mentioned to me that the men had eaten and freely the sea-water biscuits on the ship. The laboratory methods are very closely connected with the treatment of the dyspepsia, and it is probable that the same cases through the study of the results.

Two cases of dyspepsia have occurred, one from a destroyer, and one in the depot ship. The man from the destroyer was admitted with very typical signs, and I will hardly say was sent to hospital as a case of typical dyspepsia. The second and third cases, however, in a sailing ship had arrived in the depot ship from an external cause two weeks previously. On passing he failed to be seen well and was kept in light duty in the mid bay as he had been treated by the physician for some time previously, at a base. The man presented an inflammation in the stomach and during the last three or four days after admission to hospital all the time there were epidemic gastric in the mid bay and there were all sent to the depot as epidemic dyspepsia cases. Surgeon Lieutenant, Commander E. Warren discovered a source in the person of an officer's steward from the same T.B.D. as the first man had been admitted from. It is probable that the source infected his assistants in the destroyer, and that the latter infected the second man. Early procedure was taken to prevent further infection in the depot ship and affected T.B.D., and later on in other cases were treated.

During the recent survey epidemic of dyspepsia, food preparation had been much improved by means of the improved Washington Lyons distribution of a steam atmosphere, it occupies a chamber of its own on the upper deck and is always ready for use. The distribution consists simply of two cylinders one outside the ship and steam can be obtained by valve or required. And is connected to the upper cylinder through a cap fitted for this purpose steam is then admitted, and the solution of oil is blown out with the steam. During a week or which are several very small holes, the work can be regulated. A steam, two or complete and a steam cylinder can be treated at a base. The survey, strength of the installation has been found by experiment and the arrangement works in a most satisfactory manner. For this objection of the distribution, and also for the suggestion and making of the various changes I am much indebted to Surgeon Commander E. Hammond.

The medical work of a destroyer depot ship is always interesting, has the above of considerable variety and the advantage of being done by persons who are well-trained operators.

#### A HOT AIR BATH FOR USE AT SEA PLANE STATIONS

By Surgeon, Lieutenant Commander A. W. JENKINS, R.N.

AND  
TWO-THIRD LIEUTENANT MEDICAL A. L. SLACK, R.N.

[1] History of Dyspepsia.—During the winter months at a sea plane station we had reported on to by several accidents the need for a new method of applying warmth and relieving the conditions in patients who had been transferred to the water for the appropriate time in cold weather. The usual exposure of events was the loss of two men would go for a light in a sea plane, and for them there the machine would 'push' in the water and an emergency is required in the water, it might also mean their injuries (usually to the feet). They would

be held up by their life belts and would probably be at least twenty or thirty minutes in the water before being picked up by a motor boat. Then, would there have a tug back to the ship? probably a landing on a buoy, and then, from there on to the mainland to the first aid room. All this, with a very aggressive and general attack, and on the water side, the patients then rapidly became, - afloat, by the boat. By the time they are out on the deck, and made, they were usually suffering from marked shock, with faints of shivering and excitement about their faces. The shocks were quickly removed, the patients rapidly calmed down, and put to bed on narrow cots with plenty of hot water bottles. Hot drinks, warm gruel, and also cigarettes or tea or coffee, as required. In spite of the excitement the patients frequently took as long as two hours before the circulation began to be restored, during which period they were through again from the pain of shock, cold, and anxiety, the degree of shock was thereby much lessened.

It occurred to me that if instead of being put to bed in a room with a temperature of about 55° F., the patients could be put on a hot dry or bath at a temperature of 100° F., or even higher, the shock could be much lessened, and recovery would thereby be accelerated.

Accordingly after consulting with the Medical Officer in charge of Admiralty Works (to whom we are much indebted for his great courtesy in giving us helpful suggestions as to practical details), we obtained special permission to have two hot air baths constructed on the first aid room.

**Hot Medical Construction.**—These baths were built into the ambulance shed which is placed on one corner of the first aid room, and was formerly an operating table the iron and wood proper. A hole was cut in the wall between the ambulance between the first aid room and the ambulance shed sufficiently large to form the openings into the two baths from the first aid room. The baths were constructed in the ambulance shed of 1 m. wood. They were built through one another with a partition between them so that they did not communicate and they were situated on every third inside the wall was built a layer of "wicks," and inside that was fixed three rows of 10 m. in thickness. The internal dimensions were 51 1/2 m. in length by 4 1/2 m. in breadth. The height was 5 ft. 6 in. at the bottom, and 11 1/2 m. on which side the roof being that of a wide inverted "U" shape. In front, and in making these sides of them ply wood with a stone heater. This stone could be moved or lowered or well, and heat at various heights by an iron gas. Each bath was heated by natural electric radiator lamps, which were fixed under the roof (light or other side) the wrong being placed along the center of the roof above the rough stone side which the lamp fixture was covered. At a height of 1 1/2 m. from the floor was placed a sliding wooden screen, with steps was cutting of 2 m. each divided on 1. They were made in two equal sized pieces for convenience in handling, and was to protect the lamps from the water. It could be taken out if it was necessary to replace any of the radiator lamps.

The floor of the bath was on the same level as the floor of the first aid room, and was lined with "wicks" and about one in the water way in the wall and roof.

The electrical wiring was done by cables belonged to the station, and the following electrical fittings had to be specially provided, thirty six radiator lamps, one 11 gas mantle lighting, eight smaller weather lamps, and a few hot boxes. This enabled us to use 10 12 or 14 lamps in each bath as required.

**Hot Medical Use.**—On reaching information of a "wreck" with probable survivors at the point or the point and observed, all the lamps are turned on in the bath or baths required, patients are put inside them to be warmed, and the doors closed. A thermometer is also put inside. On the signal of the patients they are at once stepped in these chambers rapidly calmed down, and put to bed.

blankets or sheepskins (preferably streptococci on wheels) with a sheet on it, (Jachard fabric). This also then covered each man's hands (the feet, and the shoulders) on the one last mentioned side the table. The doors were then shut down to about 15° the patients' thoracic, their hands (emerging) outside the table, and on all blankets were placed over their heads in order to exclude the heat as far as possible. The patients then lay on their sides and their eyes thoroughly washed, the temperature being maintained by turning off some of the lamps if the patients desired it. While in the bath any response to the patients' lungs can be attended to.

(3) *Advantages of the Bath.*—The general impression of the bath we found that the results looked for were obtained. A maximum temperature of 130°F. was obtained with the door about two-thirds usually full to about 120°F. when the door had been opened a little way for a short time. However, as the temperature patients rapidly became warmed, which was a great relief attended, and patients spoke of a great feeling of comfort in warmth and accompanying comfort.

(4) *Disadvantages of the Bath as administered.*—There was a good deal of waste of heat arising in constant penetration of radiation and convection. The wood of which the bath was constructed radiated quite a very hot, especially on the inside, and the three-ply wood of the doors when heated very hot. The result was that it took a fairly long time to heat the bath. We tried by experiment that it took roughly a minute for every two degrees rise of temperature. That is, if the initial temperature was 50°F., it took thirty minutes to heat the bath to 130°F. which we consider rather long. One idea to shorten the time of heating up of the bath was to heat the inside of the bath—lugged, but we have not yet been able to get this done. We also found that the bath was lighter than was necessary and it could be made heavier with advantage.

(5) *The suggested change for the bath.*—We think that a better change for a bath would be one with the radiance lamps arranged along both sides. The bath would have the floor of the same thickness but the roof would be flat and at a height of 1 ft. 6 in. above the floor. The vertical sides would be formed by movable wooden frames with wire netting stretched on them, and the roof sides would be constructed in the same way as the roof and floor. The end sides would be "hinged" so that on raising the "false" side, the "true" side and the portion of floor between them would form a right-angled triangle with a base of 7 ft. and a height of 1 ft. 6 in. In this space between the "true" and the "false" sides would be placed the lamps parallel to the "true" side, and each lamp would have a mirror on its support reflector placed outside it in order to reflect the heat outside and absorb heat rays.

In conclusion, from our experience we are convinced of the great practical value of such a bath on a sea-going steamer and we consider that it has fully justified the very moderate cost owing to its construction.

#### RECOMMENDATIONS FOR THE IMPROVEMENT OF DENTAL EQUIPMENT IN DETACHED SHIPS

By THOMAS BURNES LUTHERY, D. DENTON, R.N.

The following improvements can be carried out at a negligible cost and have proved of great value on a small ship on detached service where it is only very rarely possible to obtain the services of a dental surgeon.

There can be no question that the preservation of the sailor's teeth must be regarded as of the first importance to proper maintenance of food and the crew.

[illegible]

Now, on the night of their release is very small. I cannot help feeling that it is  
just that, as a poet, I could not do without it.



100

Is this digital man, "made of gears" you may still see all sorts of good gear that has not reached the nerve, but (as we explain) has made the same. It reached the nerve and nerve impulses results that (as (1983) p. 8) "nothing after the last major wave has left us, on the human plane, with a life." This means that the nerve of become more active of find us as more influenced by truth.

All third round bids added to round one. For example, if you bid 100, the new bid is 150.

- (1) One quarter of one dozen has one central plus a band.  
(2) One quarter of one dozen has one central band. (Twelve)  
(3) One eighth for bananas.

© 2004 Blackwell Publishing Ltd, *Journal of Internal Medicine* 255: 105–112

The *Journal of Management Education* is a peer-reviewed journal published by the American Management Education Association (AMEA). The journal is published quarterly and covers a wide range of topics related to management education, including research, theory, and practice. The journal is published by Sage Publications, Inc. and is available in both print and electronic formats. The journal is indexed and abstracted in several major databases, including the Social Sciences Citation Index, the Social Sciences Index, and the Social Sciences Search Index. The journal is also available in a microfilm edition. The journal is published by Sage Publications, Inc. and is available in both print and electronic formats. The journal is indexed and abstracted in several major databases, including the Social Sciences Citation Index, the Social Sciences Index, and the Social Sciences Search Index. The journal is also available in a microfilm edition.

On special paper, in square, 16 cm., 16 lines, and double column.

The second difficulty which has to be met is the problem of a common standard price. The ordinary rule here is to assume that no common standard price

which is almost impossible for the operator to keep the patient's head steady and in a good position, while he is working. This has been easily overcome in the drawing shown by a small wooden handle attached to the head. In addition the headrest is provided a wooden pillar which has holes drilled through it at intervals. This pillar passes through two rough slots on the back of the standard above and by means of a peg passing through the top slot which can be worked into any desired hole in the wooden pillar the headrest can be adjusted at the desired position. It is a trade effect compared to the ordinary hair-rest device since less it serves the purpose, makes death much possible, costs practically nothing, and surely will repay the owner by reducing many new cases of disease. For there can be no question that a month's bed of broken down and nervous teeth, perhaps half the regular work, on which is the chief work in a dentist's office, would be more than paid for in shorter recovery and perhaps patient is benefited also.

---



[illegible][illegible]

It is important to note that the results of the above experiments are not intended to be taken as a guide to the design of a new machine. The results are only intended to be used as a guide to the design of a new machine.

[illegible]

He then took a full sentence as given of the article: "Understand that the 'National' campaign in England will be a show of the strength of the



















the first part of the paper, the author discusses the importance of the study of the history of the world.

In the second part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

In the third part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

In the fourth part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

In the fifth part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

In the sixth part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

In the seventh part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

In the eighth part, the author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world. The author discusses the importance of the study of the history of the world.

Figure 1. The effect of the number of categories on the number of categories used in the response. The number of categories used in the response is plotted against the number of categories in the stimulus. The data are from Experiment 1. The solid line represents the mean number of categories used in the response, and the dashed line represents the mean number of categories used in the response when the number of categories in the stimulus is 10 or 20. The error bars represent the standard error of the mean.

1. The first of these is the fact that the majority of the population of the United States is now living in urban areas. This is a result of the process of urbanization, which has been going on since the beginning of the 20th century. The process of urbanization is the movement of people from rural areas to urban areas. This is a result of the fact that urban areas offer more opportunities for employment and education than rural areas do. The process of urbanization has led to the growth of large cities and the decline of small towns and villages. This has had a significant impact on the way of life in the United States. The majority of the population now lives in urban areas, and this has led to a number of changes in the way of life. For example, the majority of the population now lives in large cities, and this has led to a number of changes in the way of life. The majority of the population now lives in large cities, and this has led to a number of changes in the way of life. The majority of the population now lives in large cities, and this has led to a number of changes in the way of life.

[illegible]

(a)  $\frac{1}{2} \log \frac{1}{2}$  (b)  $\frac{1}{2} \log \frac{1}{2}$  (c)  $\frac{1}{2} \log \frac{1}{2}$  (d)  $\frac{1}{2} \log \frac{1}{2}$  (e)  $\frac{1}{2} \log \frac{1}{2}$

[illegible]









*[Faint, mostly illegible text block]*

**1922—Case by Officers of Employment Bonds, Heavy Bonds in Case of Employment in Road**

*[Faint, mostly illegible text block]*

*[Faint, mostly illegible text block]*

*[Faint, mostly illegible text block]*

*[Faint, mostly illegible text block]*

*[Faint, mostly illegible text block]*

*[Faint, mostly illegible text block]*







Barrow  
Barnston  
Dunoon  
Edinburgh  
Glasgow  
London

# AMBRINE

The valuable phenol in essence of Ambrose  
is contained in  
One Teaspoonful

Gloucester  
Hull  
Leeds  
Liverpool  
Manchester  
Newcastle  
Sheffield  
Tyneside

A.

F.

D.

Cd.

LTD.

EXTERNAL



STANNOXYLL in Liquid Form.



APPLICATION

A.

F.

D.

Cd.

LTD.

The only form of Iodoxyll for use in the  
treatment of all cases of skin disease  
is contained in bottles containing 2 oz. of solution

The only form of Iodoxyll for use in the treatment of all cases of skin disease is contained in bottles containing 2 oz. of solution

## GALYL

THE GALLEY  
HAS BEEN  
CONTAINED IN

## SYPHILIS

THE GALLEY HAS BEEN CONTAINED IN THE GALLEY

INTERVIEW

INTERVIEW

THE GALLEY HAS BEEN CONTAINED IN THE GALLEY

THE GALLEY HAS BEEN CONTAINED IN THE GALLEY

THE GALLEY HAS BEEN CONTAINED IN THE GALLEY

THE GALLEY HAS BEEN CONTAINED IN THE GALLEY

THE GALLEY HAS BEEN CONTAINED IN THE GALLEY

# BONE SURGERY

ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS

AS MADE FOR H. M. GOVERNMENT

CAN BE WORKED ON ANY CURRENT AVAILABLE



Albee's Bone Clamp with automatic cable reel and variable clutch



251



Reversible at either end of wire

Albee's Apparatus for cutting bone directly



Albee's Bone Saw with electric motor and gears to regulate depth of cut when necessary



Albee's Method of precise measuring



Albee's Bone Instrument for the leg, to prevent the foot

Albee's Bone Instrument for the leg, to prevent the foot

Complete list of Fred. H. Albee's Instruments Catalogue  
Send for on Application

Representative is

**DOWN BROS. LTD.,**

ORIGINAL INSTRUMENT  
MANUFACTURERS

21 & 22, ST. THOMAS STREET LONDON, E.C.

Telephone No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

MANUFACTURED BY ALBEE BROS. LTD. 100, FLEET STREET LONDON

Telegraphic Address: "DOWN" LONDON

Telephone No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100



ALBEE BROS. LTD.  
100, FLEET STREET LONDON

No. 2

April 1912

Vol. V



Journal  
of the  
Royal Naval Medical Service

EDITED BY  
SURGEON-COMMANDER W. L. MARTIN, R.N.

PUBLISHED QUARTERLY

*The Society do not accept responsibility for the opinions expressed in the Journal*

PRINTED AND PUBLISHED BY  
JOHN DALE SONN & DANIELSON, LTD.  
LONDON: 25, ABchurch LANE  
41-43, GREAT BRICKFIELD STREET, OFFICE OF THE R.N.

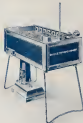
PRICE SIX SHILLINGS NET

Advertisement

# BAIRD & TATLOCK (LONDON), LTD.

14, Cross Street, London, E.C. 1.

MANUFACTURERS OF  
All kinds of Bacteriological Apparatus



Agglutination Water Bath:  
Liquor Mixture kept Perfect  
(See also page 142)

## DUROGLASS.

A high resistance Borosilicate Laboratory Glassware.

(PATENTED IN U.S.A.)

See 1015 Supplementary Catalogue

[illegible]





ALLEN & HANBURY'S LIMITED LONDON.

WYNDHAM POWELL'S  
**Aero Operating Urethroscope**

*Latest Form*



Made under the supervision of  
Mr WYNDHAM POWELL

*Descriptive Leaflet on application*

ALLEN & HANBURY'S Ltd.,  
MANUFACTURERS OF SURGICAL INSTRUMENTS AND APPLIANCES  
48, Wigmore Street, London, W. 1.

## Advances in Treatment

We make a specialty of the preparation of solutions for hypodermic injection. The following are selected from our complete list, which covers most of the formulae in use, and will be sent on application.

**"Azoale" "Pitibulan"** 1 cc. "Azoale" 1/2 cc. and 1 cc. "Pitibulan" 1/2 cc. and 1 cc.

*A light, clear, physiologically tested and standardized solution of chlorbutol in oily solution.*

**"Azoale" "Alopon"** 1 cc. "Azoale" 1/2 cc. and 1 cc. "Alopon" 1/2 cc. and 1 cc.

*A solution of the hydrochloride of the most valuable of opium salts in a suitable solvent.*

**"Azoale" Emetine.** 1 cc. "Azoale" 1/2 cc. and 1 cc. "Emetine" 1/2 cc. and 1 cc.

*For use in the treatment of Acute Dysentery.*


**"Azoale" Quinine Bihydrochloride.**

1 cc. "Azoale" 1/2 cc. and 1 cc. "Quinine" 1/2 cc. and 1 cc.

*For intravenous injection in the treatment of malaria.*

**"Azoale" Camphor.** 1 cc. "Azoale" 1/2 cc. and 1 cc. "Camphor" 1/2 cc. and 1 cc.

*A clear, colorless and odorless oil of pure camphor in solution following water, leaves and no other products.*

 Use the *distillate* used - *Azoale* is equally suitable for the injection of *Alkaline* and *Acidic* solutions.

**Allen & Hanburys Ltd., London.**

12, Lombard Street, E.C. 4. 3, New Street, Cranleigh Square, W. 1.



## LA CORONA HALF-A-CORONA



**L**A CORONA HALF A CORONA  
Cigarettes are the finest small Cigar  
dropped from Heaven. They can be ob-  
tained wherever fine Cigars are sold  
at 90¢ per 100 or 1200 per sample box  
of 25

If any difficulty  
in obtaining  
communicate with

MELBOURNE,  
HART & CO.,  
11, Broad St.  
London, E.C. 4



Special Duty Free price  
for Small Orders — —  
1200 per 100 or hundred  
boxes 90¢ per 100 or  
— — — — — boxes of 25 — — — — —







# LEWIS'S PUBLICATIONS.

AN INTERNATIONAL NEW YORK  
 100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

## THE ACTION OF MUSCLES.

By JAMES LEWIS, M.D., New York, and JAMES LEWIS, M.D., New York.  
 100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

## LEWIS JONES MEDICAL RESEARCH

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

## LOCALIZATION BY SEATS AND STENOGRAPHY.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

## THE SYSTEMATIC TREATMENT OF DIPHTHERIA.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

# AMYCAINE

(N-Hydroxyethyl) Amylamine and Benzene

Colorless and Tasteless. Powerful. Rapid and Lasting.

## HEMOSTATIC.

UNAFFECTED EITHER BY HEAT OR LIGHT,  
 FOR GENERAL AND LOCAL ANESTHESIA.

100 N. 2nd St. New York, N.Y. 10012. JAMES LEWIS, Editor.

## Dental Equipment for Army, Navy, Hospital, Clinic, Private Practice.



Specializing in equipment for dental clinics, hospitals, and private practices.

### The Dental Manufacturing Co. Ltd.

Headquarters: Manchester, Lancashire, Great Britain. Branches: New York, Boston, London, etc.

### A Pure Beef Food

**THE** most perfect food for infants and invalids, with medicinal effect in the treatment of indigestion.

**LEBROU'S** is a pure beef food, prepared by the most scientific methods, and is the only food of its kind that can be given to infants and invalids with perfect safety.

**LEBROU'S** is a pure beef food, prepared by the most scientific methods, and is the only food of its kind that can be given to infants and invalids with perfect safety.

**JARDOX**  
The Best Food for the Best of Infants

Prepared by the most scientific methods, and is the only food of its kind that can be given to infants and invalids with perfect safety.

Prepared by the most scientific methods, and is the only food of its kind that can be given to infants and invalids with perfect safety.

Jarvox Ltd., Great Palace Works, London, E.C. 1.

**BENGER'S**  
**Food**  
for **INFANTS,**  
**INVALIDS** and **AGED.**

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

Benger's Food is the only food of its kind that can be given to infants and invalids with perfect safety.

**YAN, ALEXANDER & Co.,**

**THE**

**ADVERTISEMENT AGENTS**

**FOR**

**MEDICAL AND NURSING**

**JOURNALS**

**25, Cannon Street, E.C. 4.**

**Telephone: CENTRAL 194.**





# MORE THAN A POULTICE

## MOIST HEAT

PLUS

## HYGROSCOPIC—ANTISEPTIC OSMOTIC ACTION

---

One unique feature about Antiphlogistine as compared to all other applications of moist heat, is its hygroscopic and osmotic power—the power to take into itself the products of inflammation.

Another peculiar feature about Antiphlogistine is its marked thermal property. When the watery exudate from an inflamed area comes in contact with hygroscopic glycerine, as contained in Antiphlogistine, heat is produced. As long as there is osmotic action there is bound to be the resultant heat. Hence an application of Antiphlogistine may remain warm for 24 hours or even longer.

*Antiphlogistine*

is indicated whenever and wherever inflammation plays a part.

THE DENVER CHEMICAL MFG. COMPANY,  
5047 LEXINGTON S. E.

# NOVARSENOBILLON

For Intravenous or Intramuscular Injection  
in the Treatment of

*Syphilis, Recurrent Fever*  
AND OTHER SPIROCHETAL INFECTIONS

\* Microbicidal in any fluid has proved a safe and most efficient remedy for the primary stages of the spirochetal infection. It attacks Leptospirosis, Dysentery and Typhoid of 5 days. 1 cm. Liquid "Novarsenobillon".  
The Liquid. 10 cc. with 1 cc. of 1% "Lidocaine".

Manufactured by Great British India Rubber Limited and Control of the Trade of Trade

Lithium and its derivatives may be obtained from

**MAY & BAKER, LTD.,** Manufacturing Chemists  
BATTERSEA, LONDON N.W. 6.

Cable to London Agents: Braid & Co., Ltd. Telephone: 4925/24 2500  
Telegrams: Braidco. International: 4925/24

## A. E. BRAID & CO., Ltd.

38, GOWER PLACE, GOWER ST., LONDON, W.C.1.

Representatives in R.M. War Office, Admiralty, India Office, and Foreign Despatch Office

Sole Agents for the  
"STERLING" Rubber Gloves.



Manufactured  
in  
Canada.



SOLE AGENTS FOR THE "STERLING" RUBBER GLOVES  
A. E. BRAID & CO., LTD., 38, GOWER PLACE, GOWER ST., LONDON, W.C.1.

SOLE AGENTS FOR THE "STERLING" RUBBER GLOVES  
A. E. BRAID & CO., LTD., 38, GOWER PLACE, GOWER ST., LONDON, W.C.1.

Representatives in R.M. War Office, Admiralty, India Office, and Foreign Despatch Office  
A. E. BRAID & CO., LTD., 38, GOWER PLACE, GOWER ST., LONDON, W.C.1.

Representatives in R.M. War Office, Admiralty, India Office, and Foreign Despatch Office  
A. E. BRAID & CO., LTD., 38, GOWER PLACE, GOWER ST., LONDON, W.C.1.

Sole Agents for foreign countries (Communications via telephone or post)

ALL REACTIONS of the body fluids and tissues are CATALYZED.

*Microbacterium* n. sp. pure and stable after 100 generations, is one of a new type of acid-fast organism, and is named



Cells are seeded in  
microtiter plates (100 µl)  
and incubated  
overnight.

The following COLLECTIBLES have now been adopted by licensed practitioners and/or the hospitals:-

[illegible]

Monday night had put us in some awkward positions. We all knew it was time to go, but without saying to the group manager of the event in this way, it would be better to say in a proper way.

1. I am going	2. I am
3. I am	4. I am

Address: 101 Westoverland, Overland, Kansas  
 Phone: (913) 763-1111

1991-1992 2000-2001

As stated before, we do not consider the following cases: (i)  $\alpha = 0$  and  $\beta = 0$ , (ii)  $\alpha = 0$  and  $\beta = 1$ , (iii)  $\alpha = 1$  and  $\beta = 0$ , (iv)  $\alpha = 1$  and  $\beta = 1$ . In the first case, the system is not well-posed. In the second case, the system is not well-posed. In the third case, the system is not well-posed. In the fourth case, the system is not well-posed.

Indicates one report to 2 information threats  
Indicates Estimated Susceptibility (SE) to  
Data Collection, Detection, Delivery  
By and/or Information of the Threat, Data  
Collection

**MILAN, ITALY**

A well-timed oblique strike is far more effective than a frontal one, and we saw it in the film before the fighters were fully absorbed and ready to attack and be attacked.

**MATERIALS AND METHODS**

the support of all national military leaders  
and the support of the United States  
Government and the United States Navy. I will

**Indirizzo:** **Strada 1000** **Novi** **Indirizzo**  
**Novi 1000** **Novi** **Novi**

giving up all our former scientific and literary  
 and Journal (Nov 1970, 1:10).

COLLIER, MARCUS

† Estimated temperature of 18 degrees, based on the temperature record for all ground water in region and absence of other data.

**Keywords:** *Fragaria vesca*; *Lactuca sativa*; *Silene alba*; *Brassica oleracea*; *Brassica napus*; *Brassica caulorapa*; *Brassica pekinensis*; *Brassicaceae*

1000

[illegible]

## COLLEGE HONORARY SOCIETY

I definitely am prepared to "leave my job and my company" and change to another company. But before announcing such a move, I should consider the following:

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

**BILLING CODES**

15. The first major volume I stopped. I no longer wanted that much information. I wanted to affect a minimum of fuss.

0014-1801/96/0005-0000\$05.00/0

to make sure all have 50 ft. (15.24 m) wide left-hand lanes and a good shoulder and drainage. The contractor has placed another 10,000 cu yd (7,650 cu m) of the road and completed one lane from Ball's Lake road junction to Highway 100 junction.

California, of Northern Spain, Spanish, and  
western American, French, Italian, British,  
American, Spanish, and also for France  
and Italy.

**Physical and Laboratory and Magnetic Resonance**

**THE CROOKES LABORATORIES,**  
80, Elgin Crescent, London, W. 11.



# Surgical Manufacturing Company

## A NEW TONSILLOTOME.

Mr. Hastings writes:

The TONSILLOTOME has been devised by me for the treatment of tonsillitis in a complete manner. It is the only instrument of the kind that can be introduced through the oral opening, by passing in the lower pharynx before the Place of pressure. The use of the instrument is as follows:

- (1) The large handle is held, giving a firm grasp of the instrument.
- (2) The small handle is held in the hand and held in position until the instrument is in position.
- (3) The large handle is held in the hand and held in position until the instrument is in position.
- (4) The small handle is held in the hand and held in position until the instrument is in position.
- (5) The large handle is held in the hand and held in position until the instrument is in position.
- (6) The small handle is held in the hand and held in position until the instrument is in position.



Registered No. 10,000

Made in Great Britain. The instrument is made of the finest steel and is of the highest quality.

Price 10/6 each

By Set of Three, fitted in one handle, in Steel Case 10/6 7/6

Surgical Instrument Catalogue Free on Application.

## TESKE'S STETHONOSCOPE.



10/6

Best of all the instruments have been sold

Price 10/6.

Working Model Free and Throat

10/6 each

10/6. No trial for pleasure or comfort on approval

Composed of steel  
a separate instrument  
A Stethoscope as used  
with a Stethoscope  
Stethoscope  
and Larynx

Registers the different  
sounds of the body and  
chest being no exception  
of the instrument

No suffering of patient  
required

83-85, MORTIMER STREET, LONDON, W.1.

# INFLUENZA CATARRH.

## THE PREVENTION OF PNEUMONIA.

### Suggestion by a Practitioner.

" I have of late extremely recommended those suffering from the prevalent influenza catarrh with nose throat and bronchial trouble, to use **Formamint** Tablets, one or twice daily, with, to my surprise a curious significant result: not one single case has developed Pneumonia at all! "

" Open, or evening, with its qualified safeguarding of the blood, is an absolute essential in all the cases where Pneumonia has not already developed, so that we have clearly, in the regular use of Formamint a preventive measure which allows of the system reacting to the utmost in any pneumonia crisis it is exposed to—a fighting of the danger by guarding the *janua vitæ*, the gate of some mouth and throat, which gives access to the lungs.

FAL. W.R.C.S. L.R.C.P. (Lond) (Syr.)

Prescribe the Genuine Original

# FORMAMINT

manufactured by

GERATODAN LTD. (Wholesale Proprietors of the Formamint Co.)  
25, Abchurch Lane, London, E.C. 4. (Wholesale: The Pharmaceutical Societies)

# 'DIGALEN'



THE sound principle of the rational use of a rational action, and therefore holds its dominion over the human mind, as it is. Physiological and chemical processes are in part to determine from the cause in ordinary phenomena and may become easily mistaken, making the point of

The only safe course in emergency is to well as the above best results, it is possible

## 'DIGALEN'

DOES NOT SETTLE THE

Does not cause gastric disturbance and is reliable.

- 'Digalen' is a pure and undiluted solution of AMORPHOUS Digalen (Lactin) and reversibly prevents the full effect of the digestive activity up to the amount of administration.
- 'Digalen' is prompt, powerful and non-toxic in action.

1. 100 ml. 0.5 to 1.0 g. per day

- 'Digalen' Solution (100 ml. 0.5 to 1.0 g. per day).
- 'Digalen' Tablets (100 ml. 0.5 to 1.0 g. per day).
- 'Digalen' Capsules (100 ml. 0.5 to 1.0 g. per day).
- 'Digalen' Hypodermic Tablets (100 ml. 0.5 to 1.0 g. per day).

Applied to all cases

The HOFFMANN L. HOFFMANN CHEMICAL WORKS LTD.  
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

THE HOFFMANN L. HOFFMANN CHEMICAL WORKS LTD.  
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.



## "Newman" Disinfector

REGISTERED PATENT No. 14010

**UNIQUE DURABILITY and EFFICIENCY**

**Simplicity of Construction and Management**

**Low Initial Cost and Economy in Use**

**Hundreds already employed at the Front**

When closed measures 48" x 18" by 48" x 18"  
by 48" x 18" high

When folded for Transport 48" x 18" by 48" x 18"  
by 18" x 18"

Only 1 Hour required to Sterilise 40 lb. of Dressings  
for 1000 Yards of Bandages

The Lister Wireing and Tooling Co., Ltd.  
Bangor, IRE.

15, NEWMAN ST., ST. MARKS RD., LONDON, W.1.

### *An Analgesic and Antiseptic Flexible Dressing for Burns, Wounds, Indolent Ulcers, &c.*

**GRANULOGEN P. D. & Co.** is a combination of paraffin (melting point about 117° F.) with Chloroform and a coal tar derivative, the plastic coefficient of which is 15-4. It gives exceptionally good results in the treatment of burns superficial wounds, &c., relieving pain, preventing or overcoming sepsis, and promoting prompt healing.

Moisten the Dressing with the Granulogen by gentle heat, and apply by means of a smooth glass roller, or rub in with the finger. A little of the same Dressing will penetrate from between the edges of the wound, and form an effective barrier to pyogenic infection.

*Granulogen D. P. D. & Co. is supplied in 1 lb. and 5 lb. tins.*

**PARKE, DAVIS & CO.,** LONDON, W. 1.



## THE TONIC FOOD

GOOD ASSIMILATION. HIGH FOOD VALUE. EASY TO  
DIGEST. *For the Weak, Sick, and Old.*

# OVALTINE

DIETETIC FOOD

CONCENTRATED IN THE FORM OF A DELICIOUS  
FOOD. IT IS THE IDEAL FOOD FOR THE WEAK  
AND OLD.

NERVOUS STRAIN. PHTHISIS.  
POONIMA. CONVALESCENCE.  
DYSPEPSIA. FEVERS.

PREPARED BY ALL MANUFACTURERS OF THE  
BEST QUALITY.

FOR A FULL LIST OF THE SUGGESTED PREPARATIONS  
OF THIS FOOD, APPLICATION TO THE  
MANUFACTURER, NESTLÉ & CO.



A. & C. CO. LTD. LONDON

A. WARDER LTD.  
45, GOWER STREET, LONDON, E.C. 1.  
Write: 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

## ASPIRIN TABLETS

ENGLISH ASPIRIN ONLY.

British Aspirin is the only Aspirin made in England.

We invite comparison of these Tablets with those of other Manufacturers.

- (1) **BRITISH ASPIRIN** The most reliable Aspirin made in England.
- (2) **BRITISH ASPIRIN** The only Aspirin made in England.
- (3) **BRITISH ASPIRIN** The only Aspirin made in England.
- (4) **BRITISH ASPIRIN** The only Aspirin made in England.
- (5) **BRITISH ASPIRIN** The only Aspirin made in England.
- (6) **BRITISH ASPIRIN** The only Aspirin made in England.
- (7) **BRITISH ASPIRIN** The only Aspirin made in England.
- (8) **BRITISH ASPIRIN** The only Aspirin made in England.
- (9) **BRITISH ASPIRIN** The only Aspirin made in England.
- (10) **BRITISH ASPIRIN** The only Aspirin made in England.
- (11) **BRITISH ASPIRIN** The only Aspirin made in England.
- (12) **BRITISH ASPIRIN** The only Aspirin made in England.
- (13) **BRITISH ASPIRIN** The only Aspirin made in England.
- (14) **BRITISH ASPIRIN** The only Aspirin made in England.
- (15) **BRITISH ASPIRIN** The only Aspirin made in England.
- (16) **BRITISH ASPIRIN** The only Aspirin made in England.
- (17) **BRITISH ASPIRIN** The only Aspirin made in England.
- (18) **BRITISH ASPIRIN** The only Aspirin made in England.
- (19) **BRITISH ASPIRIN** The only Aspirin made in England.
- (20) **BRITISH ASPIRIN** The only Aspirin made in England.
- (21) **BRITISH ASPIRIN** The only Aspirin made in England.
- (22) **BRITISH ASPIRIN** The only Aspirin made in England.
- (23) **BRITISH ASPIRIN** The only Aspirin made in England.
- (24) **BRITISH ASPIRIN** The only Aspirin made in England.
- (25) **BRITISH ASPIRIN** The only Aspirin made in England.
- (26) **BRITISH ASPIRIN** The only Aspirin made in England.
- (27) **BRITISH ASPIRIN** The only Aspirin made in England.
- (28) **BRITISH ASPIRIN** The only Aspirin made in England.
- (29) **BRITISH ASPIRIN** The only Aspirin made in England.
- (30) **BRITISH ASPIRIN** The only Aspirin made in England.
- (31) **BRITISH ASPIRIN** The only Aspirin made in England.
- (32) **BRITISH ASPIRIN** The only Aspirin made in England.
- (33) **BRITISH ASPIRIN** The only Aspirin made in England.
- (34) **BRITISH ASPIRIN** The only Aspirin made in England.
- (35) **BRITISH ASPIRIN** The only Aspirin made in England.
- (36) **BRITISH ASPIRIN** The only Aspirin made in England.
- (37) **BRITISH ASPIRIN** The only Aspirin made in England.
- (38) **BRITISH ASPIRIN** The only Aspirin made in England.
- (39) **BRITISH ASPIRIN** The only Aspirin made in England.
- (40) **BRITISH ASPIRIN** The only Aspirin made in England.
- (41) **BRITISH ASPIRIN** The only Aspirin made in England.
- (42) **BRITISH ASPIRIN** The only Aspirin made in England.
- (43) **BRITISH ASPIRIN** The only Aspirin made in England.
- (44) **BRITISH ASPIRIN** The only Aspirin made in England.
- (45) **BRITISH ASPIRIN** The only Aspirin made in England.
- (46) **BRITISH ASPIRIN** The only Aspirin made in England.
- (47) **BRITISH ASPIRIN** The only Aspirin made in England.
- (48) **BRITISH ASPIRIN** The only Aspirin made in England.
- (49) **BRITISH ASPIRIN** The only Aspirin made in England.
- (50) **BRITISH ASPIRIN** The only Aspirin made in England.
- (51) **BRITISH ASPIRIN** The only Aspirin made in England.
- (52) **BRITISH ASPIRIN** The only Aspirin made in England.
- (53) **BRITISH ASPIRIN** The only Aspirin made in England.
- (54) **BRITISH ASPIRIN** The only Aspirin made in England.
- (55) **BRITISH ASPIRIN** The only Aspirin made in England.
- (56) **BRITISH ASPIRIN** The only Aspirin made in England.
- (57) **BRITISH ASPIRIN** The only Aspirin made in England.
- (58) **BRITISH ASPIRIN** The only Aspirin made in England.
- (59) **BRITISH ASPIRIN** The only Aspirin made in England.
- (60) **BRITISH ASPIRIN** The only Aspirin made in England.
- (61) **BRITISH ASPIRIN** The only Aspirin made in England.
- (62) **BRITISH ASPIRIN** The only Aspirin made in England.
- (63) **BRITISH ASPIRIN** The only Aspirin made in England.
- (64) **BRITISH ASPIRIN** The only Aspirin made in England.
- (65) **BRITISH ASPIRIN** The only Aspirin made in England.
- (66) **BRITISH ASPIRIN** The only Aspirin made in England.
- (67) **BRITISH ASPIRIN** The only Aspirin made in England.
- (68) **BRITISH ASPIRIN** The only Aspirin made in England.
- (69) **BRITISH ASPIRIN** The only Aspirin made in England.
- (70) **BRITISH ASPIRIN** The only Aspirin made in England.
- (71) **BRITISH ASPIRIN** The only Aspirin made in England.
- (72) **BRITISH ASPIRIN** The only Aspirin made in England.
- (73) **BRITISH ASPIRIN** The only Aspirin made in England.
- (74) **BRITISH ASPIRIN** The only Aspirin made in England.
- (75) **BRITISH ASPIRIN** The only Aspirin made in England.
- (76) **BRITISH ASPIRIN** The only Aspirin made in England.
- (77) **BRITISH ASPIRIN** The only Aspirin made in England.
- (78) **BRITISH ASPIRIN** The only Aspirin made in England.
- (79) **BRITISH ASPIRIN** The only Aspirin made in England.
- (80) **BRITISH ASPIRIN** The only Aspirin made in England.
- (81) **BRITISH ASPIRIN** The only Aspirin made in England.
- (82) **BRITISH ASPIRIN** The only Aspirin made in England.
- (83) **BRITISH ASPIRIN** The only Aspirin made in England.
- (84) **BRITISH ASPIRIN** The only Aspirin made in England.
- (85) **BRITISH ASPIRIN** The only Aspirin made in England.
- (86) **BRITISH ASPIRIN** The only Aspirin made in England.
- (87) **BRITISH ASPIRIN** The only Aspirin made in England.
- (88) **BRITISH ASPIRIN** The only Aspirin made in England.
- (89) **BRITISH ASPIRIN** The only Aspirin made in England.
- (90) **BRITISH ASPIRIN** The only Aspirin made in England.
- (91) **BRITISH ASPIRIN** The only Aspirin made in England.
- (92) **BRITISH ASPIRIN** The only Aspirin made in England.
- (93) **BRITISH ASPIRIN** The only Aspirin made in England.
- (94) **BRITISH ASPIRIN** The only Aspirin made in England.
- (95) **BRITISH ASPIRIN** The only Aspirin made in England.
- (96) **BRITISH ASPIRIN** The only Aspirin made in England.
- (97) **BRITISH ASPIRIN** The only Aspirin made in England.
- (98) **BRITISH ASPIRIN** The only Aspirin made in England.
- (99) **BRITISH ASPIRIN** The only Aspirin made in England.
- (100) **BRITISH ASPIRIN** The only Aspirin made in England.

SAMPLES OF THE ASPIRIN AND TABLETS FREE ON APPLICATION.  
Specify the Aspirin and Tablets in England, Germany,  
and French Colonies.

NOTE: The only Aspirin made in England is the Aspirin made in England.  
The Aspirin made in England is the Aspirin made in England.  
The Aspirin made in England is the Aspirin made in England.

H. & T. KIRBY & Co., Ltd. Newton House, Willesden Green,  
LONDON, N.W. 2

CONTRACTORS TO H.M. GOVERNMENT

Telephone  
 100, 101, 102, 103  
 104, 105, 106, 107

Telephone, 100, 101, 102, 103  
 104, 105, 106, 107

## THE MEDICAL SUPPLY ASSOCIATION, LTD.

167-165, Gray's Inn Road, London, W.C. 1.

EDINBURGH GLASGOW SHEFFIELD LIVERPOOL DUBLIN AND BELFAST

### THE IMPROVED STETHONOSCOPE FOR AUSCULTATION.



Combining the ordinary Chestpiece and Phonendoscope.  
 POST FREE, 15/6.

APPARATUS FOR THE THERAPEUTIC ADMINISTRATION OF

## OXYGEN.

SOLE MAKERS OF B. J. & BALDWIN PATTERNS

L. 1

BREATHING APPARATUS, RESPIRATORS, &c.

FOR HYPOXIC GASES.

Scientific Apparatus of all Descriptions

IN METAL, RUBBER, GLASS &c.  
 for Research and Experimental Work.

OXYGEN SUPPLIES of every Description.

SIEBE, GORMAN & CO., LTD.,

WEYFORD WORKS & 47 WESTMINSTER BRIDGE ROAD  
 LONDON E.C. 4

Telephone: 3433, 3434, 3435

Telephone No. 3433, 3434, 3435

## MACMILLAN'S LIST.

### Fibroids and Allied Tumours (Myoma and Adenomyoma).

These treatises, giving history and medical treatment, by Dr. J. B. Bland, M.D., F.R.C.S., and Dr. J. B. Bland, M.D., F.R.C.S., are the most complete and up-to-date works on the subject. They are written in a clear and concise style, and are highly recommended by the medical profession. The price of each is 10s. 6d. in cloth, and 5s. 6d. in paper.

### Diseases of the Arteries, including Aneurysm.

By Dr. J. B. Bland, M.D., F.R.C.S., and Dr. J. B. Bland, M.D., F.R.C.S. This is a new and complete treatise on the diseases of the arteries, including aneurysm. It is written in a clear and concise style, and is highly recommended by the medical profession. The price of each is 10s. 6d. in cloth, and 5s. 6d. in paper.

### A New System of Medicine.

By Dr. J. B. Bland, M.D., F.R.C.S., and Dr. J. B. Bland, M.D., F.R.C.S. This is a new and complete system of medicine, based on the latest researches in physiology and pathology. It is written in a clear and concise style, and is highly recommended by the medical profession. The price of each is 10s. 6d. in cloth, and 5s. 6d. in paper.

MACMILLAN & Co., Ltd. London, W.C. 2.



## Rubbish

And REFUSE.

The CLEAN and SANITARY method of disposing of Rubbish and Refuse is by BURNING in "HAROLD" DESTRUCTORS.

Installed in DESTROYERS in—

SHIPS, DOCKS, HOSPITALS, CAMPS, Etc.

Supplied by H. J. HARRIS, Proprietor of the Harrold Company of British Destructors, Ltd., London, W.C. 2.

For particulars apply to—

The New Destructor Company, Limited

Walker House, Bedford Street, Strand, London, W.C. 2

Gold Medals awarded London, Barmby, Glasgow, Ayr.

# **TONIC. Huxley's** **Syrup of Glycero-Phosphates** **With the Acid FORMATES.**

A pure and stimulating compound of the best forms of Phosphorus and Potash and other essential materials used in the preparation of the Phosphates.

Is given in such cases as the system is debilitated by the most exhausting labours, and in all cases of debility, and is especially useful in cases of debility arising from the use of the system, and in cases of debility arising from the use of the system, and in cases of debility arising from the use of the system.

Is sold in bottles of 10 and 200 grains.

# **ANTISEPTIC. Huxley's** **SAL-ANTISEPTICUS.**

A pure and stimulating compound of the best forms of Phosphorus and Potash and other essential materials used in the preparation of the Phosphates.

Is given in such cases as the system is debilitated by the most exhausting labours, and in all cases of debility, and is especially useful in cases of debility arising from the use of the system, and in cases of debility arising from the use of the system.

Is sold in bottles of 10 and 200 grains.

# **ANALGESIC. Huxley's** **Menthol and Wintergreen Cream.**

A pure and stimulating compound of the best forms of Phosphorus and Potash and other essential materials used in the preparation of the Phosphates.

Is given in such cases as the system is debilitated by the most exhausting labours, and in all cases of debility, and is especially useful in cases of debility arising from the use of the system, and in cases of debility arising from the use of the system.

Is sold in bottles of 10 and 200 grains.

**Anglo-American Pharmaceutical Co., Ltd.,**  
**SALEN WORKS,**  
**55, Dagenham Road, East Dagenham (London).**

# Sphagnol

## OINTMENT AND SOAPS

Sphagnol is a distillate of Peat possessing the same antiseptic and healing properties as Sphagnum Moss.

Being a vegetable product, it is non-toxic and perfectly pure, and is the extract of

purest sphagnum mosses, selected from the peat bogs of Scotland, and is free from any other impurities.

For the full list of uses for Sphagnol, see the leaflet on application.

PEAT PRODUCTS (SPHAGNOL), LTD., 27, VICTORIA LANE, E.C.2.

### OUR CONSTANT REMOY.

## THE NEEDS OF THE DENTAL PROFESSION

With our extensive experience, having been for an extensive period the **SOLE AGENTS** in this country for the famous **WILKINSON** line of dental instruments, we are now in a position to supply all the needs of the profession in London.

**Mineral Teeth and Porcelain Outfits.**

**Workroom Tools and Appliances.**

**Dental Holders.**

**Hand Instruments.**

**Provision Metals.**

**Anæsthetic Apparatus.**

**Filling Materials.**

**Sandring Machines.**

**Extracting Forceps.**

**Electrical Apparatus.**

**Operating-Room Furniture.**

**English and English Instruments, etc.**

We are pleased to say that our instruments are superior to any other in the market of all our kind. With our new, powerful machines in the country and ready to use, we are now in a position to supply all the needs of the profession in London. We are now in a position to supply all the needs of the profession in London.

**CLAUDIUS ASH, SONS & CO., Limited,**

1-13, BEAUFORT STREET, COVENT GARDEN, LONDON W.1, ENGLAND.  
(Established 1850.)

# Illingworth's

## RADIOPRINT ... PAPER ...

FOR DIRECT X-RAY  
PHOTOGRAPHS ON PAPER



A RADIOPRINT is a direct X-ray photograph on paper. The image produced is a negative one, similar to that produced on an X-ray plate. The mark, however, is viewed by reflected light, like an ordinary photograph held in the hand or lying on a table, and not by transmitted light as in X-ray plate negatives. A Radioprint has the advantage of being unbreakable, easily handled either wet or dry, absolutely permanent, and approximately half the cost of X-ray glass plates.

Sole Manufacturers:

**Thomas Illingworth & Co., Ltd.,**

RAKE ROYAL, WHARFHAM JUNCTION,  
LONDON, E.C. 10

What you should

"RADIOPRINTS"

is a direct X-ray photograph on paper, unbreakable, easily handled, and approximately half the cost of X-ray glass plates.

Journal  
of the  
Royal Naval Medical Service.

Original Articles.

LYNCH, CPT. A. THE EPIDEMIOLOGICAL POSITION IN THE ROYAL NAVY  
JANUARY 1913—JULY 1915

BY THE HONORABLE COLONEL JAMES H. LYNCH, F.R.C.S., F.R.C.P.  
AND MEDICAL OFFICER

As in the last report the total number of cases occurring were for material of the 1915, have been analysed in the same manner for comparison with those in the fourth year of the war. The present report contains—

- (1) Remarks on the incidence of the cases.
- (2) Remarks on some clinical aspects.
- (3) A summary of the results of treatment.

(1) INCIDENCE OF THE CASES.

During the year August 1, 1913, to July 31, 1915, there were 90 bacteriologically proved cases of enteric fever as compared with 117 during the third year during the second and 178 during the first year of the war the percentages for the first, second, third and fourth years being 111.3, 121.1% and 75 of the total 499 cases. Except for the rise in the third year of the war which is mentioned in the last report connected with a rise in the number of cases in the civilian and military populations and also with an increased percentage of carriage in the Navy there has been a fall during the years of the war although the personnel of the Service has steadily increased. While the enteric fever would not be connected with the vigorous prophylactic measures it should be agreed in 1915. Additional is reported to have said that it was then stamped out in a year.

Out of the 42 cases the large depot at Plymouth (26), Portsmouth (17),

the *Gracia Tolosa*, *San* and *Chatham* 5 provided 74 or 66 per cent. each of the 100 annual consumption of beer on the Navy from the beginning of the sailing season (September 25), or 77 per cent. each, to the beginning of the sailing season (February 12th), *Gracia Tolosa* 71% and *Chatham* 66% which is 11 or 11½ per cent. more in sailing ships. No rate of beer consumption (about 1000 gallons) is mentioned in the *Ordenes* or *Reglamento* of the service.

The monthly consumption of beer is shown below —

		1890.	1891.	1892.
1890	Sept. 25	1	0	1
	September	4	0	1
	October	1	0	1
	November	1	0	0
	December	3	0	0
1891	January	20	24	7
	February	10	1	5
	March	15	5	10
	April	11	5	6
	May	14	8	10
	June	7	0	7
	July	0	3	0
		62	34	38

Out of the 92 cases 15, or 16 per cent. occurred during the first four months of 1891 and out of the 60 cases occurring during the first four parts of the year 1891, or 66½ per cent., were during the first four months of the year.

BEER-DRINKING AND BEER-CONSUMPTION FROM 1890 TO 1892. YEAR.

Year.	1890.				Months.									
	1890.	1891.	1892.	Total.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	Total.	
August	0	0	0	0	0	0	1	0	0	0	0	0	1	
September	0	4	0	4	10	0	3	1	0	0	0	0	14	
October	0	1	0	1	0	1	0	0	0	0	0	0	2	
November	1	0	0	1	15	0	0	0	0	0	0	0	15	
December	0	0	14	14	0	1	0	1	0	0	0	0	11	
January	20	0	20	40	81	16	1	14	0	10	0	0	106	
February	10	10	0	20	117	0	0	1	1	4	0	0	122	
March	15	10	0	25	100	10	0	7	0	0	0	0	117	
April	11	0	0	11	64	0	0	0	4	4	0	0	72	
May	14	0	0	14	64	0	0	0	4	4	0	0	72	
June	7	0	0	7	21	0	0	1	0	0	0	0	22	
July	0	0	0	0	0	0	0	0	0	0	0	0	0	
	62	24	34	120	600	36	12	32	10	14	0	0	94	

Out of the 60 cases 5, or 8½ per cent. passed fatal within forty-eight hours of the onset of these intoxicating cases 5 occurred in May, and 2 each in January, February, and March. There not coinciding with the fact that







Le informazioni sono state raccolte da un'indagine di mercato condotta da un'azienda di consulenza di marketing. Le informazioni sono state raccolte da un'indagine di mercato condotta da un'azienda di consulenza di marketing.

Other human beings—the women I met and the computerized intelligence—were present in the picture. One of 329 images on the ground floor at the National Museum of the American Indian in Washington, D.C., showed a woman in a long dress and a feathered headdress. She was looking down at a small object in her hands. The image was a black and white photograph of a woman in a long dress and a feathered headdress. She was looking down at a small object in her hands. The image was a black and white photograph of a woman in a long dress and a feathered headdress. She was looking down at a small object in her hands.

*Myrica gale* L. was noted in 26 or 28.3 per cent of the 92 cases, i.e., in 24 (26.1%) individuals were observed. It occurred most often on the 1st month (3 cases) with 32 cases and slight 40 cases days of the disease. In 1 case it appeared on the sixth or 28th second day and 1 on the third day of the disease. In 15 cases there was also an initial rash due to the disease, which disease preceded the herpes. Five cases with herpes only apparently had a morvan rash and in 41 cases an initial rash, herpes, and a morvan rash all occurred. Of the 26 cases or 69.23 per cent, proved fatal. Some of the 16 fatalizing cases, fatal within the first four or eight hours of the disease, had herpes, then contracting with their morvanosis with some on hemorrhages and of the remaining 12 cases, 4 or before the end of the first week herpes manifested in 10 or about the same percentage as 20% of the 92 cases. Out of the 92 cases during the first four years of the war herpes was noted in 117 or 28.3 per cent, being much less frequent than the other exanthemas either which occurred in 84 per cent of the 92 cases. The mortality among the 92 cases of herpes during the second, third and fourth years of the war was 12, or 21 per cent, as compared with 146 or 84 per cent, among the 92 cases of erythematous fever in the same years. The good prognosis, however, was due to herpes, either in erythematous fever probably, depends on the fact that a considerable number of cases die before the time, at which it appears. Out of the fatal cases among the 26 cases of erythematous fever in the years of the third and fourth years of the disease or the period when herpes commonly occurs.

**Rever Manifestations and Complications.**—Ocular symptoms, photophobia, usually on the second day of the disease, was noted in 3 cases, none of which were stated to have general hypermethionism. Echinopsia has never been seen in photophobia, and vice versa. Echinopsia, which is common only associated with general hypermethionism, is occasionally described in photophobia. Out of 103 cases during last years of 1910, or 143 per cent., had photophobia. The same cases resulted as outlined on 2 cases, 4 of which proved fatal.

<sup>2</sup> Halliday, *op. cit.*, 11–12; *ibid.*, 1990, vol. 1, p. 100.







amblyopia, and Linné's amblyopia, and Michaelson's severe type (and 1-11 cases, both).

Out of two 54 cases treated as 50 per cent., recovered 13; namely, 10 amblyopia, 3 within the first three days of the disease, with 4 and 11 and 11, a 47.5 per cent., which is lower than that of the 15 cases immediately treated, but not between the fourth and seventh days of the disease, namely, 10 per cent. Two cases in which the serum treatment was begun after the seventh day of the disease recovered. The results at this time differed to degree before serum treatment was begun in the 134 cases, during the second third and fourth years of the war in Vienna, but in 50 per cent. of the cases were, repeated with serum before the third day of the disease, the number of cases for comparison is small.

Days of disease before treatment began	Cases	Deaths	No. cured
1st to 3rd day	110	54 or 49.1 per cent.	110 or 55.6 per cent.
4th to 7th day	47	18 or 38.3 —	47 or 51.1 —
Later than 7th day	13	1 or 7.7 —	5 or 38.5 —
	170	73 or 42.9 per cent.	170 or 47.5 per cent.

On the basis of an analysis of 1,314 cases Florschütz showed that the mortality rose progressively, with delay, in commencing the serum in a case, but on the other hand, the most severe cases, in which the serum cannot wait to hospital, and the cases which survive in a mild without serum treatment are probably those in which the symptoms are not „grave“ and in average early diagnosis, they are certainly not infrequent, and probably even are so mild as to recover spontaneously—though it is not of proper treatment which will prove fatal later type hydrophobia.

One case recovered intracranially, intracranially and intracranially, a point of Florschütz, within the second day of the disease, and rapidly improved. The only operation in which intracranial injection was, (supplied from) found on the eighth day of the disease, and did not come into hospital until the tenth day. The intracranial injection of serum in, according to Florschütz, of value in the epidemic, pneumocephalus and Florschütz, continues that it is of little use, against meningitis infection still holds good. Two cases of fatal recovered were hydrophobically in addition to intracranial injection.

The quantity of serum given intracranially, varied from 5 cc (in a fatal case) to 100 cc in a case that recovered. Another case after 48 cc, recovered slowly, and 10 cc, intracranially also recovered. The best results were obtained in cases receiving over 500 and less than 900 cc of serum. In addition to Florschütz's serum intracranially, 2 cases, when a diagnosis confirmed, were prevented. One had 200 cc injected intracranially, and the other had a both intracranially and intracranially. Both proved fatal.

Anti-toxicogenic, vaccines were very rarely employed. As already mentioned, 3 cases (all recovered) had a stock vaccine in addition to









One squid (S. complement 1257) had 176 eggs. It had several well-developed egg complements, 344 per cent. The other complement (204) had 204 eggs. If the second one had any complement, it was 100 per cent.

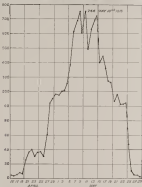


Figure 16.—Number of eggs in the Oviduct of a squid as they came out of the oviduct of squid from May 19, 1921, to May 29, 1921. (The number of eggs in the oviduct was not counted on May 20.)

One ship complement (1254) had still more without any developed complement.

From the various reports I have collected sixteen squids were caught by fishermen of which four died. Two of these also developed potential



Fig. 1. — The body weight change of salmon smolt (No. 10) fed on a diet of 1.0% food waste of menhaden (No. 10).

admission. There is no bad humors, and no violent passions. There are no tricks and heart disease.

In future treatment we find a great system applied. The Chinese doctors are not sanguine here, almost that by giving a medicine, by the slight using of the system, we have started off. One company almost the same for the first two of treatment, however.

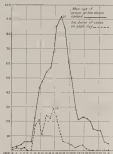
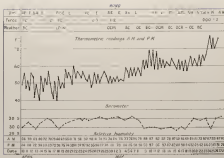


FIGURE 1.—The influence of the Queen Elizabeth system on the day's work of a ship company. Total number of days worked 100.

The real system, both by means of the Queen Elizabeth system, has been called a new ship, but some have not been able to get the system, even the previous (1914) in the world. The system on the board, however, it is there are no restrictions—a few (1914) among the members that, that is perhaps not, in preparing the period when the company, however, called in the "Queen Elizabeth," and out of a ship company of 100,000,000.





As regards gastric and abdominal forms of influenza there is undoubtedly a form of influenza which attacks the gastric and alimentary system, which is generally oblique and marked by vomiting and great depression. The authenticity of the acute abdominal type which simulates appendicitis is less convincing. I have not met a convincing case of appendicitis which could be truly traced to a sequel of influenza, and I believe several have been operated on in which the appendix was positively normal. It would appear more likely that there are cases of dyspepsia or gastroenteric poisoning or pneumonia attacking the lung on the diaphragm, with the pain referred to the abdomen and appendix region. This theory has been frequently suggested before.

The chronic complications appear in two stages —

(a) During the convalescence when acute appendicitis cases are seen (b) During the period of acute toxicæmia when signs suggesting metastatic infection and their sequelæ into a pneumonia, conditions which gradually subside, convalescence running into months before the patient is fit for duty again.

A figure consisting of —

Local influenza	Fetters		Grand fleet	
	1-5	6-10	11-15	16-20
Anglo-American physicians	3	4	—	—
Pharmacians	4	100	—	100

was made by Surgeon-Captain Francis Smith C.B. and was issued to the Fleet in November, but by the time most of the ships had got their supply the epidemic was on its last legs. The following are the results:—

Number of officers concerned		%
men		2708
officers embarked after first dose	14	
men		29
officers	second dose	13
men		26

Of these 35 officers and 496 men had only one dose. Two men non-contacted sailors, complicated with pneumonia after the second dose of vaccine, one died and one recovered. As far as these numbers go the vaccine may claim to be a good anti-influenzal vaccine, but an indifferent anti-influenza cure.

Quarantine — When ships were placed in strict quarantine the following orders were issued and — "Influenza is to be treated in strictly hygienic surroundings. Officers and men who have to go on board infected ships or petty are not to enter any messes, and so far as possible are to remain isolated in the open air. Officers when on shore are to keep entirely apart from officers of other ships and are not to make use of any club house, theatre, etc. The ships' routine is to be so arranged that finally, nurses and travelling parties are housed in the forenoon. These parties are to be under supervision and are not to enter any building or mix with



more from other ships. Usual leave is given to hospital patients and, as selected from non-selected cases. Naturally, men so sent whom proved they have not been in contact with infectious cases.

When non-infectious cases are being kept in quarantine, food and other things arrive as to be sent as tribute to the commanding officer of the hospital or hospital ship that the ship is kept reasonably infectious.

If possible, drafts should not be sent from a ship or establishment as a quarantine to a ship free from it and when they are unavoidable it should be drafted as soon as possible to a depot or hospital ship. It is to be kept in advance stating the fact. Men are not to be drafted from selected cases.

During the height of the epidemic in November all drifting between the depot and ships of the Grand Fleet was stopped for a fortnight and such as were in the north had to return away and the operation of the fortnight. It was thought that considerable benefit was obtained by this last measure.

Great care and forethought had to be exercised in leaving quarantine lines and returning for the rest of a fleet that had been at war for long years. It was essential that no unnecessary and excessive restrictions should interfere with these matters, general and general medical and hygienic. To keep up their spirits and excellent morale was every bit as necessary as keeping out the epidemic, which unfortunately was at its height at a time when every thinking person thought the enemy must come out to his conference.

THE GOLD AND SILVER MINES PRODUCED DURING THE  
CLOSING YEAR, 1911-1912.

THE GOLD AND SILVER MINES OF CANADA, 1911-1912.

This report contains the report from October 1, 1911, to September 30, 1912, during which time the Naval Stores have been supplied with a high quality storage vessels in that used in previous years. This has been found to be the best of the College (Glenwood), and also, for the use of ships stationed in the Mediterranean a number quarterly from the Royal Naval Hospital, Malta.

*History of the vessels which have been received*

Number of vessels received	Cost received	Value received
10,000	1,000	10,000

There will be no vessels have been slight, but occasionally some vessels have been used. Most have been, depends upon the technique employed in the vessels, followed, the obsolescence of the individual and the personal opinion of the reporter.

Firstly, it is important to give the individual vessels, and not into the vessels, when given and local working will be more useful, and the first defined fully. Secondly, the use of the vessels should be the vessels, so that the patient shall have not so much as possible and afterwards a great twenty-four hours at least. Thirdly, some vessels are more acceptable than others, depending largely upon their position and the character of work on which they are employed. Age is an important factor, as in advanced life vessels tend to be more useful. Fourthly, the personal opinion of the reporter. Some would prefer a vessel which was only a temporary use in comparison to a permanent.

The most useful vessels received during the year were from a large at 1,000, where the men were under a condition of extreme nervous tension. A sample of the vessels was tested, and no unusual reaction was noticed so that the health was not observed in any way. Another instance of interest showing that large doses may sometimes be given without ill effects. In this case two men were treated with 100 cc instead of 50 cc, and there was no marked reaction. The medical officer had therefore confidence in the efficacy of the vessels, which appeared to be in this case.

Vincent has recorded several instances of a vessel had where as much as 100 cc was given. It is known that a number of subjects injected beyond that required to cause an output of the substance necessary for the

ending (1950) survey its remaining value is not literally as shown in brackets since the extrapolation response was tested, and, though that response was almost nil.

Finally, however, the total number of cases of autism were 80, 68, and 67, respectively, for years +1, and 11 years +2. The following table gives the data in detail.

Level category	Typical cases	In	
		Para. 1 cases	Para. 2 cases
Typical, 1 case	0	—	0
— "space"	75	3	4
Not recorded	55	4	7
—	—	—	—
In all	75	5	11
Excluded cases	1	—	—
Not recorded	1	1	—
—	—	—	—
	5	1	—

Of the twelve typical cases, who had been recorded twice, or several times over two years had elapsed since being last recorded, but in each the period was only six months, and the last was fatal. Of the two para-1's one had been recorded six months before and one a little over a year showing comparatively slight progression from the form of the disease. Of the two para-2's in both the cases the recurrences had been given over two years previously.

The results show that the prognosis for typical and para-1's is good, but at least two recurrences are required, and that in recurrences should be made not later than eighteen months.

## THE SHIP'S DRAINAGE SYSTEM

(1) *General Considerations (Ships of 100 tons)**General Considerations*

*General Remarks.* The drainage system includes, essentially, the means of collecting the bilge water and of discharging it overboard. It is usually located in the lower part of the hull. By the bilge pump, water is drawn off below the bottom and is pumped down for discharge to convenient discharge points. They may be located in the fore or aft of the ship or in the center of the ship. In small ships such as destroyers there is only one discharge pump and it may be several. In the construction of one ship, the bilge pump, pump shaft for discharge pump should not be too close to galley, (10 feet of displacement per day) or adjacent to toilet. It is better to pump out 10 gallons per hour for those days. In other systems, they may be a displacement of one thousand tons should be provided with bilge capacity holding at least 5000 gallons (10 tons).

It will be necessary here to give various figures which will be found useful when it is necessary to determine the weight or volume of water contained in tanks or other receptacles. One cubic foot of fresh water contains approximately 64 gallons and weighs 64 lbs. One gallon of fresh water weighs approximately 8 1/2 lbs., or other words each ton of freshwater contains 24 gallons. By means of these figures having measured the capacity of a tank it is easy to calculate the amount of water by weight or volume which it contains.

It must be remembered that the storage tanks are not constructed independently but are simply compartments formed by the plating and framework of the ship. Their construction is thus frequently very irregular, rendering clearing and refilling somewhat difficult operations.

To minimize the risk of pollution when the tanks are opened for repairs or cleaning purposes, the manholes should not be situated in a sloping or moving compartment, if such an arrangement can possibly be avoided and they should in no case be flush with the deck. Arrangements should always be made so that water can be poured from the water tanks to the bilge without opening up the manhole. By means of a suitable pipe connection conveniently situated for the attachment of the water hose, bilge pumping is facilitated and the danger of pollution reduced to a minimum. The water has investigated several tanks in which pollution of the drinking water resulted directly from the passage of contaminating matter through manholes situated in moving compartments which had been opened for filling purposes. In these ships,

<sup>1</sup> For fresh water (distilled) 1 cu ft. = 62.5 lb. (100 tons)

where it may be in the event of an emergency it is necessary until the operation is completed.

Ventilation is provided for by means of pipes leading up from the tanks as well as ports such shaped vents as the nature requires (Fig. 4, 1). The nature of the amount of water in storage tanks might demand, tanks are fitted. The openings in these tanks which are provided with pipes, caps are either situated near the manholes or on the stern or upper deck near the air vents. The same openings are lead into a drinking water tank, especially if as in the case with the sounding tanks the openings are flush with the deck, this prevents the risk of pollution. Incorporating them into some of our recent ships the special tube for sounding purposes has been done away with and we find in use a combined air vent or overflow piped and sounding pipe. In this improved fitting the pipe ends above the deck in two locations one of which goes straight upwards for a few inches and acts as the sounding tube whilst the other extends across over to form the cross-head shaped air vent.

The sounding purposes a steel rod, 2 or 3 feet long, to which is attached a length of rope line, is commonly used. When descending the escape of water from the stern is so prevented that these rods should be such as seldom as possible, as rather very carefully looked after they may be a source of pollution. They should be protected from rust and dirt by keeping them in clean canvas covers. In tanks fitted with the latest type of forged manholes inspection is safe and easy, and for these sounding rods should seldom be required.

Anti-rust frequent means of trouble are found ship in the presence of rust in the drinking water and to prevent its occurrence various means which will be considered fully later have to be adopted. On all iron or steel surfaces exposed to the action of air and moisture, oxidation of the metal takes place resulting in the formation of rust. This action occurs when iron or steel comes in contact with water, fresh or salt and when a current from the metal forms an oxidation over the whole of the surface exposed. The process is increased by heat. Once the formation of rust has commenced corrosion takes place due to the galvanic action between the rust and the iron from which it is formed, with the result that the latter is further disintegrated. Chemically rust is a mixture of the hydrate of ferric and ferrous oxides of iron  $Fe_2O_3$  and  $Fe(OH)_2$ . It is about six times as heavy as the metal from which it is derived so that when it occurs in small unperforated iron pipes it very eventually leads to their complete rupture. All water, hard or soft will rust iron or steel surfaces, but the action is greater in the case of soft water and especially those with a scale which are slightly acid.

Long as a drinking water system is most unobtainable, its presence in tanks gives them a dirty appearance and tends to the corrosion regarding cleanliness and when, as is frequently happens, it is carried on in impure water the latter is rendered unwholesome and objectionable.



[illegible]

Trunk lead or main runs within a structure, its exterior, and its walls indicate that the collection of water by these heavy metals is a frequent activity relative to a drinking-water. In samples in which cadmium and lead (Pb) showed the most important accumulation the presence of chlorine (Cl) shows metals were in the soil which concerns us most, as lead and cadmium are positively derived and both in the drinking water system by the soil ions shape. Quite safe waters are not infrequently required in home, farm, or even polluted areas without a comparison of the total dissolved solids in the presence of iron was the no indication of recent natural rust water traces.

In concluding these remarks, we wish to re-emphasize the fact that another objection to the presence of cast iron in municipal water supply systems which have been washed on rusty water frequently, does not much extend to the treatment of the iron in the water of the system.

**Prevention of fire.**—The best method of dealing with steam in the long, narrow tubes is to prevent its occurrence. In the case of the ship's engine tail-end running tandem there can be readily accomplished that it shall be near the pervious end of the steam from the distribution pipes, a definite measure on board ship.

In the fresh water storage tanks, rust is prevented by coating the internal surfaces with some form of proprietary "white" oil product, dissolved from oil and waxed. "black" coatings, most likely contain copper salts. (1) They must be of such a nature that nothing harmful can be added to the water. (2) They should exhibit when properly set a hard, smooth surface. (3) They must either float in the tanks and be able to withstand vibration without cracking and scaling, or the various processes for the prevention of rust which we claim to be described, if resorted to have the steel surfaces thoroughly clean and free from rust before the coatings are applied. By careful attention in this preventive coating will remove efficient much longer, and the too frequent use and use of tanks for drinking purposes, with the accompanying evils of pollution will be avoided.

Downloaded from <http://ajphaphapublications.sagepub.com/> at 11:51 11 November 2014

Galvanizing, or coating with zinc or an equivalent metal, and is frequently used in house boats, fitted with the wooden under. It is not, however, a process which can be conveniently used in the case of the storage tank, but, owing to the proper application of the zinc, it sometimes takes the appearance of the steel surface on the upper part. First, however, it is painted over the steel with a lead or oil paint. Lead, brushed in this way covering the lead, portions exposed to air is blown away from rust. Where applicable this is a kind of protecting metal is not usually one of the best at first cost. In all cases, however, where zinc is used the possibility of galvanizing is by the zinc must be borne in mind. All water will kill a young plant, and life is extremely long in contact with the metal. The same, however, which attack it most readily the soil and water, and various mechanical degrees of hardness containing carbon and iron. The same is true of water as the carbonate. Lead, brushed in as before by zinc. Another means, that of zinc is sometimes used in a galvanizing pot or in boiling and on suspension is characteristic. This appears to be the simplest the water.

Lead, in oil, zinc is not a cumulative poison, and its presence in small amounts in a water need not necessarily condemn the water for drinking purposes. It is well known that water containing zinc are habitually drunk in China, with no obvious deleterious effects on health. Generally, however, of the metal is found in a water, and many authorities are of the opinion that zinc poisoning resulting through the agency of a drinking water is impossible. In connection with galvanizing it should be pointed out that one of the sources of zinc, zinc blende ( $ZnS$ ) is generally associated with arsenic or lead sulphide ( $PbS$ ) so that zinc may contain as an impurity small traces of lead. But the possibility of lead poisoning resulting from the action of a water on galvanized tanks or pipes is manifestly remote.

Cement—The protection of steel by means of cement is a method which is very generally used. It is valued highly in the matter of water-tightness and in the case of all vessels fitted for the carriage of dangerous cargo. It is the method which is most generally relied upon in the ships of the United States Navy. Coating with cement is easily done in H. B. ships. As will be seen from experience, which may be used as to successfully used in H. B. ships is much more efficient.

Cement is a mixture of limestone and clay. In the process of manufacture, the clay is added in the necessary proportion to limestone, the mixture is calcined in a kiln and finally reduced to a fine powder. Chemically, cement consists largely of the silicates and aluminates of calcium when mixed with water forms an soluble hydrated silicates are known as the crystalline or drying, and the amorphous, or non-drying.

When surfaces are first prepared by means of cement, two or three coats of the cement wash should always be given, and each coating should be allowed to set properly before the next is applied. A suitable wash is



strongly reduced weight of cement with the result is more. It has been shown that concrete can be made in such a manner that the strength is increased. This will be dealt with in another paper on the subject, but it will be seen that it is not necessary to the formation of strong concrete,  $\text{SiO}_2 + 2\text{H}_2\text{O} + \text{CaCO}_3 + \text{H}_2\text{O}$ . It should be a cement-foreign matter is good where water is not, but it is a disadvantage and gives a clean white appearance to the work, but it is not required by the water when the work is in use. In fact, the most proper choice of the cement. When proper precautions are taken during the placing and setting of work to prevent the water, it is not and does not, it is not of the time which may be considered unnecessary.

The surface formed by cement is not so smooth as that which results when asbestos is used. The cement coating the chips and scales tends to crack in the work of joint and vibration. This leads to the accumulation of deposit and may give rise to trouble with pipes and pumps.

As a rule, such cement is rarely used in the storage tanks in R. M. ships. It has been used on several light cranes in which the tanks mounted with it were subjected to great vibration, but the results were not so good as with asbestos. It may be emphasized again here that in some cases an efficient coating of any material, the surface to be coated must be first made as clean as possible. It is not true that also in some cases the material used is not properly before water is allowed to flow into contact with it. As a rule, tanks coated with cement require re-coating about once every three to six months. In a day or two the water treated has tanks coated with cement may have a somewhat disagreeable flavor, this can be cleared up by flushing down the sides of the tank when the coating is wet and pumping dry again before filling.

Beddowns.—The application of one or more coats of asbestos in the position most generally used in R. M. ships for the protection of and in the fresh water tanks. It is an excellent method and when the compound is properly applied it forms a most efficient lining. The resulting surface of a tank bottom or almost flat surface is beautifully smooth. It is very durable, having been down to five years. The coating also when properly applied does not readily disintegrate or crack and withstands vibration, salt. Beddowns is a mixture, preparation somewhat similar to Asbestos-Portland cement, the latter is employed largely in the construction of other means, and consists of a mixture of sand and fresh water and cement. There is one important difference between the two preparations. In the case of Asbestos-Portland cement, the sand is very coarse which can be treated with heat to cause it to a very high temperature. On the other hand can be used on surfaces of moderate temperatures, and is thus generally applicable for the various water tanks on board ship. After some months a brownish stain may form on the surface of the beddown. This stain is fairly common and is not readily removed, the movement of the water which moves in contact with it.



1.  $\mathcal{A}$  is a  $\sigma$ -algebra (closed under countable unions, countable intersections, and complements).  
 2.  $\mathbb{P}$  is a probability measure (non-negative, countably additive, and  $\mathbb{P}(\Omega) = 1$ ).

[illegible]

The final age of a stream through which it flows is still somewhat difficult to judge based on a single pollution sample since the catchment is composed of several different types of terrain, some of which are highly erodible. The catchment is mostly in contact with the river system, the surrounding area is mostly forested, and there are some small areas of agriculture. The pollution is mostly from the forest area, and the high erosion rate is due to the high erosion rate of the forest area, which is the main source of the high erosion rate resulting in the catchment area.

There is no recognized standard for good water supply systems, and the supply of water from the soft drink bottling industry has not diminished. It may be argued that the use of numerous plastic bottles, the fillings of which water always is poured into, are the cause of the problem, and the reduction of internal pollution of the containers may remedy the situation. It is more probable that slight water leakage in bottles and lines is a greater factor than the use of plastic bottles in the bottling industry. Water with carbonated gas, not hot or cold, leaks. When it is possible, therefore, the supply from the leaking tank should be cut off. It is not known how practical it is not possible, e.g., where an alternative supply must be for the time available all the water used for drinking purposes will be the washing of eating utensils should be avoided, and the leaking is the cause of disease of food. At the first opportunity the tank should be pumped dry the following day or even overnight and the problem be worked down and a solution. Disinfection may be required, however, the whole of the interior of the tank will have to be cleaned and the frame is not available by washing down with 1 or 1000 solution of chlorine or formaldehyde disinfectants such as sodium and acid peroxide of sodium should not be used in disinfectants tanks.

As regards permission, the rule of the linkage of one state's consent to the other, would be again limited by placing the state bound above

in 1917. Points in this chapter where disinfecting arrangements are recommended during water flows are shown, and suggested an almost complete plan in order to protect the health of the crew. It is suggested that the water made safe by what is the "best" plan in the present world be carried out in the planning of future vessels, especially those of large displacement, the pollution of the feed-water when entering tanks by salt-water would be very small. It is the responsibility of those that we inspire it down to the tank tanks. (A. B. and A. L. No. 104, 1917.)

For following water works with regard to tank cleaning, we have seen in A. B. O. 14, 1917: (1) The work of cleaning tanks is of course to be carried out under medical supervision; (2) the chemical treatment of the water also usually enters the tanks as it is passed; (3) the work is to be done by the ship's crew, not by a crew.

When cleaning water tanks the importance of employing suitable strength for tank cleaning purposes was emphasized. It should be noted, e.g., when a ship is in dock, and tanks are moved or other parts of the hull of the tank becoming contaminated is greatly increased. The water has been turned into where tank pollution was directly due to the employment of shore labour. The strength employed in the work should be supervised by the medical officer. The men should be in good health, they must be capable of carrying out the work of any kind should be required. Men with serious signs of any form of venereal disease or skin disease or men suffering from diarrhoea or other diseases should not be paid. When they have suffered from typhoid in the past, also those suffering from dysentery, or who have recently had the symptoms, should be rejected. It would be well to see that the men who are to be employed inside the hull are as healthy as possible. Each crew should have a bath. Germs in clean water should be worn.

The disinfection of the hull of a ship who have to enter drinking water tanks for cleaning or any other purpose is the same as cleaning water coming from the hull of the vessel. Men should never be allowed to enter drinking-water tanks or their hulls. If there is a leak in the hull, the hull should be worn, and of those the hulls being worn, each should be disinfected with the same method. Various means may be employed in carrying out the disinfection of the hulls. Before hulls can be disinfected in the hulls of ships where the hull is covered, but hulls between cannot be treated in this way. It is a good plan to carry out the work of disinfecting the hulls immediately before the men enter the tanks. A good method which is largely used in the water tanks, and which is generally applicable to the hulls, is the tank method, two hulls or hulls are containing boiled water; the other is disinfected solution. Immediately before entering, the tank crew with the aid of a clean cloth washes the hulls thoroughly in the water tank, and finally in the disinfectant solution, special care being taken with regard to the sides. Disinfectant containing chlorine is the most

intended for information only. If there is any possible violation of this code of ethics or a disciplinary action, please contact the Compliance Department. You may also report a possible violation of this code of ethics or a disciplinary action to the Ethics Officer. The Ethics Officer will investigate the matter and report the results to the Compliance Department. The Ethics Officer will also provide guidance and support to the employee who reported the violation. The Ethics Officer will also provide guidance and support to the employee who is the subject of the investigation. The Ethics Officer will also provide guidance and support to the employee who is the subject of the investigation. The Ethics Officer will also provide guidance and support to the employee who is the subject of the investigation.

After retirement, all funds should be carefully segregated in order to ensure full transparency with respect to the use of all funds for financial and non-financial purposes. It will personally ensure the fund and ensure that all other funds have been returned over the time.

Twenty firefighters ran the storage unit, with one left trapped when someone in all parts of the shop when a fire erupted. Effective groups are used for this purpose, but emergency response is that there is a fire, can be resolved by hand in the case of the fire, and the fire will die.

[illegible]

These tanks are made of galvanized steel plates and are complete in themselves. On the upper surface on roof are attached the supports and pipes which sloped at rest or overflow pipe. We generally had here also a small opening fitted with a valve cap for venting purposes. The water is, necessary to provide means for venting it is better to let it condensed at rest and venting tank such as we have seen is used in connection with the storage tanks. I also had to find the means of it. It is such pipe from the main which may be led up through the bottom of the tank to a few inches from the top or may be led directly through the tank roof. The water for distribution leaves through a tank through a pipe which leads from the bottom and passes down to join the main distribution pipe. Both these pipes are connected in side. In practice it is the easiest to be done tanks with manifolds at the fresh tip. The objection to this form of manifold here already brought up and it also remains however the most manifold is not so necessary for the prevention of pollution but only manifold are much more convenient in a drainage system and should be used when practicable in all drainage water works. The gravity tank's provided the manifold to always kept properly in position should addition require cleaning. The galvanized steel surface makes free flow and the water and if after a certain time

however, might run pipe, these tanks could, given a new boiler, be converted, thus, into fuel tanks.

**Distilling.** *Fig. 10.*—The general principle of the system of distilling described in Chap. 10 is very similar to that which is commonly used on ships. Inventing and in the storage and gravity tanks corresponding respectively to the boiler and water reservoirs, no steam is admitted to the water reservoir but the cover plate and frame over the boiler are heated by the hot gases as regards the heated space is necessary that the water is not drawn directly from the gravity tanks. This is an important point to observe. The water in the forward and after coarsely equipped distilling tanks is not fit for use as drinking water. Fresh water as we have already seen, is not up to the point in tank 10 that by regulating the steam valve and carefully adjusting the necessary, and from at least the necessary condensing space will supply all pipes where fresh-water is required. The water in the pipe system is controlled by valves on first and second distilling tanks and on the water tank.

The forward distilling tank is an old design used. It is water-tight and has been altered to an H. M. ship in order to prevent a leak in the capacity that is given. In this process, experienced means are used to keep the distilling tank from being heated to a high temperature, the temperature is, in some cases, and the steam passed through the forward tank, the result of this treatment the distilling tank is for use in the ship, the forward tank is of iron. This tank is of iron and the boiler is of iron work, is very hard and cannot withstand pressure is usually used at well present the formation of rust and long periods. During the past few years, however, rust has been increasing paper has been a frequent source of trouble on many of our ships, and especially in light cruisers and ships. Possibly owing to the construction of ship building, and the necessity for regularity in construction during the war the kind of iron paper have been of this one is considerably heated as water used at all, but most of this and some other alterations in ship building before the war, and it has been found a serious defect in the whole system of the prevention of rust caused by the drinking water pipe.

As it will be seen, lead pipes are frequently employed on ships in the distribution of drinking water, but the danger of lead poisoning is now, from there are a well recognized and others, makers with a well-known solvent action is there and are being dealt with, unless even on steel pipes in some cases of the material, artificial treatment so that there is no lead is provided. The lead pipe where necessary, may be used if desired, a time rather than a. We have seen in very old and frequently used the use of lead in the drinking water system must be avoided. The lead piping should not be used, and where possible, the employment of the steel in the pipes in the system of the drinking-water pipes should be avoided.

The first danger the action of a water on the metal is the dangerous distribution of drinking water, but the danger of lead poisoning is now, from there are a well recognized and others, makers with a well-known solvent action is there and are being dealt with, unless even on steel pipes in some cases of the material, artificial treatment so that there is no lead is provided. The lead pipe where necessary, may be used if desired, a time rather than a. We have seen in very old and frequently used the use of lead in the drinking water system must be avoided. The lead piping should not be used, and where possible, the employment of the steel in the pipes in the system of the drinking-water pipes should be avoided.

The first danger the action of a water on the metal is the dangerous

on the presence or absence of these chemical joints. The results of the several experiments and careful tests in connection with the study of which may be seen in the accompanying case notes, show that the use of distilled water hydrochloric acid, a certain degree of hardness and water will prevent this action. It has been found that in waters containing more parts per 100,000 of the following: sulphates of calcium, and magnesium, no relation of the initial action owing to the formation of insoluble carbonates and sulphates of lead. Although a very low concentration of lead has been found in the distillate, water in H M shops. When present it is probably placed in the distillate as the result of the metal which has been used in connection with the water in the distilling paper. In such cases one will generally find that sufficient time has not been taken to prevent the exposure of the lead on the water surface of the paper.

As lead is a cumulative poison, when a trace of the metal in a drinking-water must be recognized as a danger, and rapid action is one of the means that a water containing the slightest trace of lead in solution should not be used for drinking purposes. When lead is found in the drinking water on board ship, the use of distilled water should be discontinued, and clean water only used for drinking purposes until the cause has been removed. If this is not feasible the simplest means of removing carbonic acid to render the distilled water alkaline might be used. This will could be added to the water in the storage tanks. It is also the single shell or lime stone which is frequently carried out so there is present the means of removing lead as a method which might also be used on board ship. Lead pipes with leaden lining have been employed successfully on shore. For these are not used for use on board ship where as a result of the risk, and so while the distilling paper are frequently exposed, results as failures may be produced in the future. Any such break in the economy of the long leads to galvanization between the tin and lead with the result that lead will be readily dissolved by the compound water.

Various means have been suggested and employed for the prevention of rust in use in steel drinking water pipes. Lead's presence has already been mentioned, and from the results in our shops it would appear that this method is not satisfactory. A various glass has been used as a protective lining for large vessels, but a coating of this nature is too easily cracked, and would be quite unsuitable for the smaller pipes on board ship. Bituminous substance such as Asphal. linoleum are largely used on shore for lining water-tanks and such compositions might be used with advantage for the prevention of rust in the main fresh water pipes on board ship and on larger branches but they are not suitable for the smaller distilling pipes. Galvanizing is probably the best method to employ for the prevention of rust in the steel drinking water pipes on board ship. For many years galvanneal pipes were fitted in H M ships, but there was one disastrous accident to the pipe the danger of rust poisoning. When discussing the subject of water on some earlier on this paper, it was pointed out that

The risk of zinc poisoning resulting from the drinking of water which has been in contact with surfaces coated with this metal is very small. Galvanized paper are now frequently employed on ships, and no case of zinc poisoning resulting from their use has been reported, and in the ships of the United States Navy they have been used for many years with no deleterious effects on the health of the crews. Galvanized paper are again to be employed in H. M. Navy, and most of the ships now completing are being fitted with them. When there are, in general, rust in the drinking water on board they should be a rare occurrence. In those of our older ships in which the steel surfaces of the pipes are continuously protected, and rust in the water is causing trouble, arrangements should be made for removing the piping in sections and cleaning out all the rust; these pipe lengths which are badly corroded should be replaced.

Care must be taken in planning and fitting the drinking-water distribution system that it is kept entirely separate from the bilge-water system. The use of taps or lengths of piping common to the both systems should always be avoided if possible, and all salt water taps should be clearly labelled as such. The piping in H. M. ships is now so extensive, and serves so many different purposes, that some distinguishing mark is necessary to enable one to identify at a glance to which system a pipe or pipe connection belongs. For the distinguishing marks different colours are used. These colours are also used in distinguishing masts for pipes represented in drawings supplied for the information of the ship's officers. It should be noted that only the flange, forming the joint and about two feet of the piping on each side should be painted, and in compartments where there are no flange about two feet of the pipe lengths should be painted as if there were. With the exception of the distinguishing colours the various pipes are painted to conform with their surroundings. The distinguishing colour mark for fresh water pipes is Egyptian blue.

The following are the colours used in painting ships' pipes, &c., and also in representing them on the drawings supplied for information:—

Steam pumps	Green & green and white red
Steam pipes not belonging to steam pumps	Blue & white and green Venetian red
Despatch & land pumps	Orange yellow
Finding, finding and steam lines	Pink and purple black
Sea service	Verdun red
Fresh water	Egyptian blue
Hydraulic supply	Egyptian blue and purple stone colour
Ventilation supply	Blue & white and purple Egyptian blue
Ventilation exhaust	White colour
Whitewash, Tarzels &c. service	White colour and purple Queen's green

#### DISTRIBUTION TANKS

For convenience in distribution, drinking tanks sometimes called serving tanks, are fitted in H. M. ships in suitable places for the supply of



the various vessels and such places as the ash bay and medical disinfecting stations, passages, magazines and magazine handling rooms. Four tanks, which are rectangular in shape, are made in different sizes, varying from the smallest holding 75 gallons to the largest with a capacity of 1000 gallons. Their structure is very simple. They are made of wrought-iron reinforced internally. In the upper portion is set in a circular opening protected by a perforated metal disc, and enclosed by a funnel-shaped guard through which the tank is filled. On this surface also a goose-neck shaped vent is generally fitted. As in the case of all vessels for completely air spaces containing drinking-water, these gasometers should and are furnished with openings. The main air drawing and expelling purposes is situated on one or other of the sides and on one of the sides close to the bottom of the tank is fitted a tap by means of which the water is drawn. The funnel-shaped guard is provided with a circular cover. In some drinking tanks that cover has a circular opening through which the branch pipe from the main for filling purposes passes into the funnel for a few inches. In others the branch pipe from the main ends a short distance above the funnel and the cover for the latter is complete. These complete covers are the most satisfactory. In those which are protected by the filling pipe disc and communicating meter can enter between the pipe and the sides of the opening through which it passes, and owing to the low position of the branch pipe the water surface of the funnel is also difficult to clear. When air fitted on the branch pipe above the drinking tanks, and, by opening these the latter can be filled as required.

The arrangement for filling the drinking tanks exhibited above largely prevent the entrance of dirt and communicating meter provided care is taken to see that the funnel covers are always kept in position. If these covers are left unsecured, or with the covers only partly in place, they act as traps for dirt and dust, and each time filling is necessary, the dirt or communicating meter which may have accumulated in the funnel is washed directly into the tanks. A better method of filling would be to lead the branch pipe from the main directly into each tank and fit on each a goose-neck shaped vent in place of the escape of air. By this means, although the tanks would be more difficult to fill in position, the entrance of dirt and dust would be more effectively guarded against.

At first glance it would appear that the drinking tanks on board ships are superfluous, and that water could always be available where required direct from the branch pipes by means of taps. It must be remembered, however, that the capacity of the service reservoirs on gunship tanks which carry from 2 to 6 tons in our smaller ships to 5 to 7 tons in our larger ships is comparatively small, and unless extra storage were provided by means of the drinking tanks frequent pumping from the storage tanks to the gunship tanks would be necessary. To supply 50 gallons per head daily in a ship with a complement of 1000 men in which the capacity of the

gravity tanks. It (course) would require filling the tanks at least once a day.

Not only, in the drinking tanks largely increase the fresh-water storage on board, but in fighting ships their employment must be considered essential in order to insure a suitable supply of water after action. During an engagement the gravity tanks may be decanted, as is the case with systems of the fresh-water pipe systems destroyed, and with the exception of the water available in the drinking tanks the water supply may be entirely cut off. It is most important, therefore, when ships are going into action to see that all the drinking tanks are full. It should be remembered that the drinking tanks by adjustment of various valves can be filled direct from the storage tanks without passing the water through the gravity tanks. It is the custom, however, in H. M. ships to pass all fresh-water through the gravity tanks, so in this way the daily amount of water expended can be readily checked and regulated if necessary.

Each tank should be cleaned out at least once every six months. Although well protected and kept especially when sailing ship and the dust in the ship generally, gradually leads to the accumulation of deposit which must be removed. A good procedure which is carried out in most of H. M. ships is to inspect the drinking tanks about once every three months and clean out those the condition of which is then found to be unsatisfactory.

In the United States Navy where the drinking tanks are known as canteen tanks, a metal cup is generally attached to each by means of a chain. This arrangement is convenient in as far as it saves the man a certain amount of trouble when they require to quench their thirst, but the use of a common drinking cup in the canteen which are obvious to all medical officers most undesirable. When the common drinking cup is employed, the danger of infection might be largely diminished by having a basin of liquid containing some disinfectant solution, in which the cup could be immersed after use. Such an arrangement would, however, not be very satisfactory. A certain amount of water would be wasted in running out the cup each time a drink is required and as frequently happens in the case of hygienic countries which depend on the individual for their medical supplies, one would find that the routine for the disinfection of the cup would often not be carried out. To enable men to obtain a drink without using a cup or other receptacle, Surgeon Bates of the United States Navy devised an apparatus some years ago which he calls the "bubbling spring." A description of the ingenious contrivance is given in Galewood's book on "Naval Hygiene." Briefly it consists of a length of piping extending the base of the scuttle but, from this piping, into which the water from the latter passes, several small branch pipes pass, respectively supplied by a few valves, and not an innumerable forams.

The vertical branch pipes, each of which is controlled by a valve and double, consisting of an inner and outer tube, the former of which extends

a hole in the bottom of a drink is required, one of the valves is opened and water is projected upwards from the main tank. Any waste water passes but through two air tubes to be drawn eventually to the food tanks for boiler water. In drinking it is said that by slightly protruding the lips of a drink in contact of the mouth and the funnel is used. Such devices in the shore would, however, appear to be unnecessary, and the custom of our ships of obtaining a drink from the main tank by means of a bowl or cup from one man to another.

#### PRODUCTION OF WATER

When schemes for the production of water supplies for ships in communication are under consideration the most important factor is to obtain if possible a source of such a character that no purification is necessary. The purest waters are obtained from mountain lakes and streams from upland gathering grounds where there is no contamination and little human traffic, and from many deep wells and springs. Waters from such sources as a general rule require little or no treatment to render them safe for drinking purposes. Unfortunately such pure supplies are not always available and means must be adopted to make these waters, the sources of which are satisfactory, safe waters. During recent years, as our knowledge of the bacteriology of water has increased great improvements have been made in methods of water production. In this respect, whilst the foundations of the various methods of filtration have been demonstrated and many of the so-called domestic filters have been discarded as not only useless but actually harmful the great importance of storage and of chlorination in rendering a water safe for drinking purposes has been recognized.

We have already seen the precautions which are taken to ensure that a water obtained from the shore for our ships is a safe water, not only when it leaves the shore pipe on the pier but also when passed into the storage tanks on board after its transport from the shore by water boats. We have also seen that water obtained constitutes a good possible supply can be obtained on board when necessary by distillation. As a general rule, therefore, the most method which makes the most effect in the Army, has in various limited links with methods of water production. One of the duty is to see that all the necessary precautions are taken to prevent the various forms of bacterial pollution which may come to a water during its storage and distribution on board ship. For many years all the water used for drinking purposes in R.M. ships was filtered on board. For this purpose General Admiralty pattern filters were used. In these the filtering medium formed a mass of charcoal lumps and shavings, was contained in glass tanks somewhat similar to the drinking tanks now in use. The use of these filters was discontinued some years ago, and was replaced on certain production of the water occurred on board for drinking purposes was considered necessary. In 1905 an Admiralty Order was

ruined, directing that all water which is received on board H. M. ships from the shore for drinking purposes is to be chlorinated as a precaution the ship's storage tanks.

When considering the question of the purification of shore water which has been received on board ship for drinking purposes, it must be remembered that during the years preceding the war the general tendency in H. M. ships was to avoid shore water for drinking purposes as much as possible and it was only in exceptional cases even in home waters that shore water was made use of for this purpose. Even in the year 1911, water-boats were comparatively few in number, and were available only for our ships in our larger naval ports. This was obvious that water boats form a most important adjunct to the fleet.

As the war progressed and naval tonnage increased, the value of water-boats was more fully recognized, and it was soon evident that a very large increase in the number of these vessels would be necessary. This increase in the number of water-boats was required, not only to meet the demands of additional ships at an increasing number of naval bases, but also because during war it is most important, especially in the case of our fighting ships, to use as little distilled water as possible in order to economize in fuel and prevent wear and tear in machinery and plant. An increase in the number of water-boats to meet urgent demands under active service conditions, means not only the employment of vessels which may not be altogether suitable for the transport of drinking water, but also the employment of men who have had little or no experience in watering dates, and whose knowledge of hygiene is practically nil.

It will thus be seen that the introduction of some method, such as chlorination to deal with any microbial pollution which may occur in a water-boat is a precaution which is to be commended. Under war conditions also the possibility of interference with the water supply for our ships by enemy action, although probably a remote contingency, must be borne in mind. Consequently, therefore, if all drinking-water received on board our ships from the shore under active service conditions would appear to be a sound hygienic measure, and if the process is properly carried out, it should be a complete safeguard against the possibility of contracting typhoid or other water-borne diseases through the agency of drinking water. Under peace conditions, with suitable medical supervision of water-boat disinfection processes, should not be required whilst our ships are in home waters, but at all times should all shore water which it may be necessary to take on board for drinking purposes should be chlorinated until the medical officer has satisfied himself by investigation and personal inspection that all the arrangements for the transport of water to his ship are satisfactory. Chlorination, in the addition of chlorine, or substances containing active chlorine, to water for the purpose of disinfection, is now a proved method of water purification.

For many years "boiling," with or without filtration, was the chief

method of use in the field for obtaining a satisfactory disinfecting effect. It was obtained by boiling lime between sheets of kieselguhr. Although it was originally probably the most ideal method, it is not practical now, and various schemes have been introduced during recent years for clarifying water by chemical means. One of the first of these was Schödenberg's lime-salt process, in which 500 gram of lime was added in each liter of water. In this process the excess of lime was had to be removed by the addition of sodium sulphate. Potassium permanganate was obtained. In this method, which was sometimes known as "padding," about 80 gram of permanganate were added to each gallon of water, and had also to be added to liberate the oxygen. Good results have been obtained with this method in India, where it has been largely used in treating waters from the cholera group of organisms. Potassium permanganate is however a comparatively facile decomposed, and the strong solution of the chemical required makes this method a costly one. India was for some time adopted in our Army as a means for water disinfection for troops in active service in the field. As in the lime-salt process free sulphur had to be removed from the water before it could be used for drinking purposes and the method was not sufficiently simple to be generally useful. More recently acid sodium sulphate has been advocated. The disinfecting action of this salt is due to the liberation of free sulphur, and when it is added to water, and as the addition of no further chemical is necessary, the employment of acid sodium sulphate represented a distinct advance in methods of water-purification. One tablet containing 1 gram of the salt was used for each liter of water. This method, which was recommended by Fritter and Hildes, was however intended chiefly for the disinfection of small amounts of water, such as are contained in "bottle water" bottles. Not only is acid sodium sulphate not suitable for the purification of water in India, but the fact that it gives no disinfecting power to the sulphur, and which is generated makes it a most undesirable chemical to use in the case of water contained in metal receptacles other than aluminium.

**Chlorination.**—To be really useful and generally applicable we require for the chemical purification of water some substance which can be used in a simple manner, in very small amounts and which when added to the water in the necessary quantity will not interfere with the palatability of the water. It is now generally accepted that chlorine and derivatives containing chlorine are the most suitable for this purpose. In India during recent years medical officers have used with success for the purification of water a portable apparatus for generating chlorine gas. This apparatus consists of a generator and a receiver by means of which a chlorine solution of known strength can be made, of which definite amounts can be used as required. As will be seen here however the use of bleaching powder as one source of active chlorine has practically replaced all others.

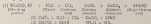
For the disinfection of water served on board H. M. Ships medical

chlorine dioxide gas must be kept under water. Chlorine dioxide readily dissolves in water and is represented by the formula  $\text{ClO}_2 \cdot 2\text{H}_2\text{O}$  in pure form. It can also be dissolved in water, or available chlorine, usually 14 per cent, in slightly concentrated form. In this strength the hypochlorite solution is fairly stable but it should be kept well cooled in a dark place. Whether this effect is very useful, I have not been used as a large scale for the disinfection of drinking water by Dr. E. L. Howard in 1905. Early on that day a large amount of chlorine in the form of chlorine with great results in the treatment of the London water supply in which an outbreak of typhoid fever had been averted. The amount used varied, but was usually about on part of available chlorine to 1,000,000 parts of water. In the New method above, water is added to the one-third volume of chlorine for every 100 gallons of water, this amount represents about 0.6 part of available chlorine per million parts of water.

Chloride of lime which is now used in our shops as the source of chlorine in place of chlorine gas has numerous advantages over the latter. Being in the form of a powder it is more suitable for storage and transport; it is less expensive and as it contains a much larger percentage of available chlorine the amount required is much less. Chloride of lime, usually known as bleaching powder and sometimes referred to as chlorinated lime, is a compound of calcium hypochlorite and calcium chloride and has the chemical formula  $\text{Ca}(\text{ClO})_2 \cdot 2\text{CaCl}_2$ , also written  $\text{Ca}_2\text{Cl}_2\text{O}_2$ . It is made by passing chlorine gas over slaked lime. The reaction which takes place is shown in the following equation—



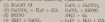
As met with commercially chlorine of lime is a pure white powder with a characteristic pungent smell. Unless impurities, the chief of which are calcium hydroxide and calcium carbonate, are always present. The available chlorine which it contains should not be less than 30 per cent, and as good samples it is usually about 35 per cent. In making calculations for the purpose of water purification good samples of bleaching powder which have been carefully kept may be considered to contain 35 per cent, or roughly one third of available chlorine. The powder when exposed to air and moisture becomes moist and sticky, and gradually deteriorates in its oxidizing value owing to the liberation of chlorine and the formation of calcium carbonate. The changes which take place are represented in the following equations—



These changes in the composition of the powder are measured by light and heat. Bleaching powder which is to be used for water purification

should therefore be kept in air tight receptacles, perlinite, an arsenical boron, and arsenic in a dry cool place. Good samples of bleaching powder, carefully kept, should not lose more than one per cent. of available chlorine per month. It is the custom now when supplies of the powder are abundant at the naval dockyards to transfer a sufficient quantity of powder by vaporization for water purification to air tight bottles. By this means, generally, supplies of bleaching powder should be made to world-wide use in our ships. But if it is considered necessary or advisable to continue with the chloride of lime in all drinking water derived in U.S. ships from the shore, even during peace conditions more reliable supplies would be secured by obtaining the powder in small quantities in sealed bottles drawn from the reserves.

It was formerly believed that when bleaching powder is added to water, merely the stage reaction occurred in which it is exposed to the air, and that free chlorine was liberated. This is however not the case. The disinfectant power of the bleaching powder when added to water is not due to the production of free chlorine but to the formation of hypochlorous and chloric acids. When bleaching powder is added to water it splits up into its essential constituents calcium chloride and calcium hypochlorite. The latter is decomposed by the carbonic acid present in the water resulting in the formation of hypochlorous acid and calcium carbonate. This hypochlorous acid in the presence of organic matter and bacteria gives up the whole of its oxygen, and the hypochlorous acid which remains combines with calcium carbonate to form again calcium acid and calcium chloride. These changes are shown in the following equations:—



Hypochlorous acid is a powerful oxidizing agent, and appears to have a chlorine action on bacteria of intestinal origin. Although oxidation is in chief action it has probably also a direct toxic action on any bacteria present in the water.

It will be seen from the above that the use of the term "disinfection" is applied to the purification of water by means of chloride of lime is, strictly speaking, not accurate, as at no stage in the process is free chlorine present in the water. The sterilizing action which results from the addition of bleaching powder to water is due entirely to the oxidizing action and direct toxic effect of the hypochlorous acid which is produced.

Chloride of lime has been extensively used during the last few years for purification of water supplies to our arsenals in the field, with results which have been highly satisfactory. It has also been employed with excellent results in several of our naval war lines where reliable natural supplies of water were not available.

The amount of chloride of lime which is required to sterilize a given quantity of water depends on: (1) The amount of organic matter present, (2) the nature and amount of suspended matter, (3) the degree of pollution, (4) the degree of contact. It varies from about one part of available chlorine to 1,000,000 parts of water to one part to 1,000,000.

Various methods are now employed to determine the exact amount of chloride of lime which is necessary to sterilize a given water, but as these methods are somewhat complicated and the necessary appliances not always available, it is on the whole more satisfactory to use always a definite large dose of the powder which we know will be sufficient to render all waters safe. Experience has shown that for the sterilization of selected waters, chloride of lime should be added in such a strength that the available chlorine present will not be less than one part to 1,000,000. Provided all suspended matter has been removed by straining or filtration, a water can be rendered "safe" for drinking purposes by the addition of chloride of lime in such a strength that the available chlorine is one part to 700,000. In this strength the palatability of the water is not affected and indeed the majority of persons using a water so treated are unable to detect it at any added or peculiar taste. As a general rule at least half an hour should be allowed to elapse after treatment before any of the water is used for drinking purposes.

The following regulations with regard to the chlorination of water in prisons or houses are as follows:—

1. Whilst the drinking water tanks of any of H.M. ships are being filled with water from the shore, the water, however pure its source, is to be chlorinated by adding to the water chloride of lime in the strength of 50 gr. to each 100 gallons, whilst the tanks are being filled. The water so treated would be ready for drinking one hour after. Complete sterilization can be confirmed by drawing water from the tank into a test tube and adding two or three drops of a solution of potassium iodide and starch when a faint blue colour will result.

Thirty grains of chloride of lime to 100 gallons represents one part of available chlorine to 700,000 parts of water. 50 gr. of chloride of lime to 100 gallons. 50 gr. of chloride of lime is  $(500 \div 10,000)$  gr. 10 gr. of available chlorine is 1,000,000 gr. (assuming our sample of bleaching powder to contain one-third of available chlorine). 2 gr. of available chlorine is 500,000 gr.

In all processes for the chemical purification of water, especially where large quantities have to be treated it is most essential to ensure thorough mixing so that all portions of the water come into contact with the disinfectant. When carrying out the treatment on board ship the medical officer should first ascertain the amount of water which is to be taken on board and then determine the amount of chloride of lime which will be required. The amount of water measured on board is generally noted at a early time. For each ton of water 50 gr. of the powder are necessary.



desirable admixture of the chemical with the hypophosphite can be obtained by adding the powder directly to the tank. A solution of the powder must first be made by mixing and thorough shaking up, preferably with distilled water or water which has been rendered sterile by boiling, and the entire liquid which results then, allowed to flow slowly into the tank whilst the latter is being filled. When preparing the solution it is best to add at first only sufficient water to make a thin paste; when this paste has been well mixed the water can be added as required. The solution which is always present in such a solution is such, and consists chiefly of sodium hypophosphite and sodium carbonate. The flow of the solution should be so regulated that all will have passed into the tank just as the filling of the tank is completed. Some form of receptacle can be readily constructed to enable the chloride of lime solution to be added in this way. All that is required is some form of container fitted with a tap by means of which the flow of the solution into the tank can be controlled. An ordinary funnel with a capacity of several pints and provided with the necessary regulating tap will be found very useful for this purpose.

Attention has been made of the blue colour which is frequently obtained on the addition of potassium nitrate and starch to a sample of water which has been treated with chloride of lime. This test is a useful guide to determining whether a sufficient amount of the chemical has been added to a water to render it safe for drinking purposes. The appearance of the blue colour after adding the potassium nitrate and starch is an indication that all the hypochlorite acid has not been used up and that oxidation and purification are still going on. Kapurians has shown that in the large majority of cases in which this test at the end of fifteen minutes is found to be positive sodium chloride of lime has been added to free the water from oxidation of the intestinal group. The test is, however, not an absolute indication of purification. Hazen, when carrying out experiments prior to the chlorination of part of the London water supply, showed that this "blue" test is not always satisfactory. In a series of samples of which after treatment with chloride of lime, 10-8 p.p.m. were sterile, he found that all but one gave the blue solution; the sample in which the test was negative was not sterilized.

Recognizing the great value of chloride of lime for water sterilization purposes attempts have been made to prepare the powder in solid form so that small quantities of water such as are contained in serum water bottles might be readily purified. It was found, however, that tablets containing the same amount of chloride of lime necessary were usually too unstable. After experimenting with a number of other substances containing chlorine, Baker and Dunham have introduced "chlorine" in stable tablet form for sterilizing small amounts of water. Halonox is the name which has been given to phosphorochlorohydrate, and the chemical formula of which is  $\text{Cl}_2\text{N} \cdot \text{ON} \cdot \text{C}_6\text{H}_5\text{COOH}$ . The tablets each containing about 4 mg. of the disinfectant are made up with dry sodium



## HETEROPHORIA

By THOMAS NICHOLSON, M.D., F.R.C.S., F.R.S.

In all pathological refraction conditions, there must be gradually understood that defective muscle balance. With measurement, appears concerning the strabismus as well as concerning the relative frequency of defective muscle balance, and indeed, heterophoria seems to have become temporarily at least one of the most fashionable legions of Naval medical circles.

To test a defective, when a defective cannot fully tested, several muscle balance is the measurement of the external ocular muscles separately, each eye is turned through, on the object in view, producing perfect coincidence of images without conscious contact of any muscle or group of muscles. Classically defective muscle balance is a condition in which either there is excessive action in one or a group of muscles, or in which there is no perfect coincidence of images.

In effect defective muscle balance results either in potential eye strain or in a squint. In Naval practice the form of defective muscle balance compensated well almost invariably by heterophoria or latent squint, but in either is understood the part it is necessary to understand the whole. The one object and condition of this essay is to express as clearly and concisely as may be the facts and theories of heterophoria, and consequently as more than necessary will be written on the presentations and theories of other conditions of muscle balance.

However, a clear idea of the normal conditions of binocular vision is necessary. In rest, the eyes as a rule diverge slightly and are directed towards the upper and outer quadrants of the orbits. In use, however, the visual axis of the two eyes converge between parallelism when the object in view is at infinity (in position at a distance of ten inches or more) and the angle formed by ocular convergence (the object in view being fixed at the nearest point before the eyes at which it can be seen without diplopia). Between these limits only a horizontal range exists. The effect of perfect binocular vision is to give a stereoscopic view of the object looked at, and depends not only on the accurate viewing of each eye on the object in view, but also on the quality of the images formed on each retina. A blurred image on one retina will not accurately coincide with the clear image of the other retina, consequently refractive errors of the eyes tend to interfere with binocular vision. This interference depends less on the degree of error than on the difference in error between the two eyes. For example, if each eye is equally hypermetropic there may be little interference with binocular vision, than if one eye is hypermetropic and the other is normal, since it may be easier for two blurred images to coincide than for

one clear, I will see, clear enough. Should the difference between the images of the two eyes be such that compensation becomes impossible,

one of two phenomena must occur. Either the more defective image will be suppressed—that is the brain will ignore more or less completely the impression from that vision—or the clearer eye will be turned away from the object in view so that the blurred and confused image of that eye shall not be allowed to clash with the more clearly defined image of the other eye. This condition what is known as constant squint or strabismus, and it is a logical result of a series of processes originating from the refractive error in that eye. For a time there will be double vision, but after a while the brain will probably suppress the image in the more defective eye (the false image) and muscular action will result in turn to such an extent that the false image will become so faint as to pass practically unnoticed by the patient.

be much for the exposure and relief of a large error of refraction on binocular vision.

Should the error of refraction be such that accommodation (focus) of a unit be possible, but, however, without complete compensation being obtained, there may result a state of unstable equilibrium in which muscular action will maintain its way although there exists a tendency for the more defective eye to be turned away from the object in view, a tendency that will be relieved if anything should come to attention further with the fusion of images. This tendency may in some cases be relaxed should the night be temporarily averted so should the general tone of the muscles be lowered by general debility, and again be renewed when rest or good health has been obtained. A condition known as periodic strabismus.

This unsteady tendency to squint is known as heterophoria, and its relationship to true strabismus on one side and to refractive errors on the other is clear. This close relationship must be kept in mind in considering not only the subjective effects of heterophoria, but also the methods used in its diagnosis. The subjective effects of heterophoria are stated to be very similar to those of astigmatism due to overaction of the ciliary muscle, and are said to be the cause of a great many cases of eye fatigue and headache. This view is still a disputed one, but in any case the symptoms are closely allied to those caused by refractive errors to which they are related, and consequently the treatment of one is the treatment of both. Undoubtedly every case is not so easily ruled as that, because in a number of cases it has happened that heterophoria has gradually progressed and the group of muscles that is always tending to produce a squint has hypertrophied to an extent that preservation of the muscle balance is only maintained by contraction of the counterbalancing muscles, and some further assistance to these counterbalancing muscles may be needed in order to so establish stable equilibrium beyond merely following the natural course of increasing the relaxation of the defective eye and thus improving fusion and making binocular vision possible.

Heterophoria, in its relation to the primary defect of the eye is—the subjective error or whatever the interference with coordination of images of lines a close analogy to the symptoms of *accommodatory failure* in the case of organic double defects, inasmuch as it is an indication of the extent of the muscular and a measure of the failure of the mechanism concerned. Heterophoria registers the extent of failure of binocular vision just as, nearly as dysopia, or asthenopia, registers the degree of failure of the ocular mechanism. Just as nearly as an improvement in ocular tone will improve or remove the symptoms of dysopia or asthenopia, so will an improvement in the force of the ocular images be reflected as an improvement of the conditions of the related muscular balance. Finally, the effects in carbon myopia which may persist after an improvement in ocular tone are analogous to the marked hypermetropia of opposing ocular muscle groups which may persist after correction of the primary optical error.

In a word heterophoria is a secondary and not a primary condition. This point of view should be the basis for any efforts to treat cases of heterophoria.

Heterophoric symptoms should be regarded as an indication that there exists an interference with binocular fusion so great that failure of binocular vision is threatened. We must endeavor to discover what factor threatens to destroy binocular vision, and we must endeavor to remove or at least minimize the results of this factor on the knowledge that the removal of the cause will go a long way on the road to removal of the effects—that is, of the heterophoric symptoms. In most cases the primary cause will be a difference in refraction between the two eyes resulting in different images which are difficult of coincidence. In simple words the retinal images will not be sufficiently able to render fusion easy. In a certain number of cases study of the ocular muscles may reveal dependent on some general or local method of muscular work. For example the *exophoria* and other phenomena that are amongst the sequelae of wasting diseases that lead to general muscular prostration as well as the diseases of which diplopia, as the example which produces muscular degenerations affecting the innervation of the external ocular muscles. Finally there are certain cases in which the interference with fusion is caused by some lesion of the optical apparatus such as corneal opacity or retinal disease, such cases are incapable of much relief, and are beyond my treatment.

The rational treatment of heterophoria, therefore, in addition to treat most of the primary cause must include a well-considered period of rest to enable the ocular muscles to recover as much as possible of their tone together with whatever local or general systematic treatment is required for the condition or nervous prostration of the patient. The most essential points in treatment of heterophoria are accurate correction of the optical error, coupled with a prolonged rest and tone treatment for the patient should he show any signs of muscular or nervous prostration. The right

should be used as late as possible, and no strain of any kind permitted, unless, in some cases a little room would appear necessary. If the test is accepted that heterophoria is secondary to interference with binocular vision, and in a warning of a threatened loss of binocular vision and requires the progress of the treatment, it is obvious that we have a more valuable method over the progress of recovery. It is unfortunately limited in its extent by the fact that in cases of long standing a degree of permanent over-action or instability may be attained. It is this permanent over-action or instability that prevents after all our efforts, which alone justify the use of correcting prisms. Could we use instead what we are dealing with a residual permanent strabismus, the use of prisms may only cause us to neglect the most important steps of rest and house treatment in the actual treatment of the patient.

There are certain influences in the examination and education of heterophoria, that give rise to a number of false conclusions as to the mechanism of the condition, which is really a comparatively rare. It is not proposed to detail the various methods of examination, which are given in full in ophthalmic text-books. These methods will be referred to and criticised under the assumption that the reader is familiar with these applications. The methods all depend on interference with the sense of fusion to such an extent that any latent strabismus will become manifest.

The Maddox rod method is most suitable for examination of a distance, and the object light should be at a distance of six meters or more. The defect of this method is that the normal condition of convergence of the ocular muscles at rest is not usually parallelism, but divergence, so that interference with the sense of fusion may produce a divergence which is not abnormal. In hypermetropic subjects in whom convergence is abnormally overdeveloped by reason of the close relationship between the mechanism of accommodation and that of convergence a certain degree of convergence may not indicate anything more than the accommodative effect of the hypermetropic eye in being the object light in a house.

A deviation there is below, however, indicates true heterophoria.

In estimating deviation against a scale one approximates deviation of less than 2°, and seldom exceeds a deviation of less than 12°.

In the examination of very near objects by the Maddox rod double prism, or other method, it must be remembered that the examination becomes to an extent an examination of the power of convergence, and this may be modified by various factors such as hypermetropia, which, by reason of the stimulus between convergence and accommodation should mentioned, may show increased convergence or a response which may show divergent convergence.

The chief method of concluding the examination for heterophoria is to first estimate and correct any error of refraction, either estimated or latent, and to then proceed with the examination by the Maddox rod

method, as on water it does. It is not possible to measure the refracting glasses of these compound and diffuse strabismic and anisometropic eyes. With these precautions, however, a good correspondence may be found.

To measure one's eyesight is not sufficient.

Heterophoria is a compensatory eye condition depending usually on interference with the act of obtaining coincidence of the images of the two eyes, and occasionally on primary lesions in the ocular muscles or their nerve supply and represents a tendency to failure of binocular vision.

Its treatment depends on the treatment of the primary defect whether in the optical apparatus itself or in the ocular muscles or in their nerve supply, associated with facilities for the recovery of the muscles from their debilitated condition.

Heterophoria is a reliable sign in diagnosis, as it marks a condition preventing failure of binocular vision and consequently is an indication of the need of immediate treatment.

Usually, there are failures in the use of the standard methods of detection of heterophoria, which need to be avoided in order to obtain trustworthy results.

# STRAIN IN THE SURVEILLANCE SERVICE WORK ON THE SYMPTOMS, CAUSATION TREATMENT, AND PRE- VENTION OF THE CONDITION

By SAMUEL CHAMBERS, B. S. B. HALL, D. S.

**THE STRAIN** is a term given to a group of symptoms which arise from fatigue of the muscles of the eye. The muscles affected may be those controlling the accommodation, or those regulating the movements of the eyeball as a whole.

A patient who is suffering from this condition complains of headache and pain in the eyes, usually worse by use of the eyes for any near work, and as a rule seriously disturbed by the patient in that work. In addition there may be decreased productivity, watering of the eyes, excessive and uncharacteristic tearing after using the eyes for a short time at close work upon an exposure to light, and irritation of the eyelids, with burning and itching sensations. Close work can only be done for a very short time without a rest. The condition is worse at night, and in artificial light as if the patient is "run down." In many cases the eyes, when reddened, the eyes look inflamed and the patient frequently blinks, or touches certain muscles of the face. In some cases lacrimation or actual weeping occur. The condition progresses until the close of work, which system is can only be carried out with great discomfort and loss of efficiency, or has to be abandoned altogether.

Eye-strain may arise in those in whom an error of refraction (long or short sight or astigmatism) is present, or in whom there is a loss of balance of the external muscles of the eye when sustained accommodation and convergence of the eyes is required. It may also occur in subjects in whom none of the defects mentioned is present, but in whom accommodative tone and divergence are partly vitiated by prolonged use of the eyes for near vision. This is particularly the case when, from various causes, there is any disturbance in the health of the individual concerned. Eye-strain may be a manifestation of asthenopia.

The treatment of eye-strain consists in correction of the error of refraction or want of muscle balance, by means of suitable glasses; improvement of the health of the subject, and equal attention and adherence to the rules of general hygiene, with the elimination as far as possible of the causes which create the condition.

In view of the occurrence of cases of eye-strain in the telephone service, it is desirable to review the particular causes at work in this branch and to consider the means by which these causes may be prevented or diminished.



Long-focus (or) telescopic is, arising from —

- (1) The use of the periscope
- (2) Excessive constriction of the periscope
- (3) Excess of viewing
- (4) Excess in the size of those using the periscope
- (5) Deterioration of health due to extreme hygienic surroundings

(6) The use of the periscope in the treatment cases of eye strain. It involves numerous faults with accommodations, and convergence of the eyes, the whole body being in a strained position under conditions of great responsibility and inequality of action, for long periods.

To lessen the liability to eye strain therefore, even in individuals in whom there is no defect of the eye, long periods of use of the instrument must be avoided in order that the internal and external muscles of the eye may not be unduly strained. The suggestion to keep the natural eye closed must be discarded, since by closing the eye an unnecessary strain is put on a group of the facial muscles. It has been shown that the pressure from contact touches on the tightly closed eye causes great distortion of the cornea, which gives rise temporarily to numerous defects when the eye is brought into use.

It is of the utmost importance that the eyes of the observer at the periscope should be shielded and not subject to direct effect in the presence of the sun, of bright or unshielded lights. A method of securing these points is being introduced. Apart from its effect on the periscope observer, the scheme of illumination in submarines, in which the observer must live for days in artificial light, requires and is now receiving careful consideration in order that the detrimental effect of glare may be obviated.

A second position when in the periscope plays a prominent part in the production of eye strain, and it is therefore essential to adjust carefully the height of the periscope to that of the observer and so arrange that whenever practicable the observer is seated. Obviously errors in construction and adjustment of lenses must be avoided. In many periscopes spherical and chromatic aberrations are present to a large degree and are factors in the treatment of eye strain. In periscopes fitted with a variable eyepiece a correct focus is easily and quickly obtained, but in those in which alteration of focus is made by means of separate lenses there is the possibility of an invariable focus being chosen and fine adjustment is not possible in respect of the limited supply of lenses. The method of focusing in these instruments, however, is being revised.

In chronic strain symptoms of eye strain may arise in those who have normal eyes when prolonged use is made of the eyes for periscope work, especially under conditions of impaired health. To those in whom the defect is related to weak eye strain, a correct focus or lens is desired, reducing these particles or whole, with the work required from causing a loss in the course of trained and experienced personnel. In order

to reduce this loss as far as possible, it is essential that only those shall be admitted to the Submarine Service who, as the result of examination, are shown to be free from defects, or conditions, recognized as predisposing causes of eye-strain. In the past insufficient attention has been paid to this subject but under the revised conditions of examination of candidates it may be expected that the losses which have occurred will be materially reduced. Complete recovery from breakdowns from this cause need not be looked for, however, as from the nature of the work involved considerable strain is entailed, and even the possession of a normal eye may have to relinquish work for a period as in some cases entirely. The loss with knowledge of life as the confined space of a submarine is continuation of those factors which are productive of defective hygiene a necessary but more familiarly with those factors may cause them to become disregarded it may be desirable to emphasize the main point by which their effects may be diminished.

This point involves still into the fact that the submarine must be regarded as a weapon the full efficiency of which is entirely dependent on the personal factor by which it is controlled and just as the weapon itself must be maintained at the highest degree of perfection, so must the person element be kept in a state of complete fitness. Apart from the work, both the necessary to produce, and maintain the efficiency of the weapon, those who are required to use it must be placed under the highest possible standard of living, and given that relaxation and change so essential to the production of health, and with it fitness, and to the preservation of the condition known as stamina. It is recognized that the employment of a movable base is, in certain instances, imperative and for this purpose a parent ship is necessary. Unfortunately the object of this ship has not always been a happy one, and an obsolete ship with inadequate accommodation cramped crew decks, no space available for resting and recreation rooms, and with the upper deck—the only space available for exercise—crowded with workshops has been selected. Whenever possible the base should be an elms, but provide all reasonable means for the comfort, recreation and relaxation of the crew, as well as the materials for maintaining the attached vessel in efficiency and repair.

The submarine is not a habitable vessel for prolonged periods without physical deterioration, nor can patrol duties be carried out for long without exhaustion. The crew, therefore, must be taken out of the boat whenever possible, and given opportunities for being away from submarine surroundings to the greatest extent possible. Physical drill is in the nature of a very beneficial, but cannot be carried out adequately as the cramped surroundings to be faced in the average parent ship.

It is of interest to note that from the statements made by submarine crews attached to small parent ships, and submarines of that class in which the crew live in glass vessels, the period of working in basins is regarded as more tiring than the actual cruising legs. Leisure is

efforts, and even more, to give us greater help. The things of good have other ends, even to give us more health. It is understood that the system is in force at times, if not at all times, but it is difficult to understand as a definite system of force, it is possible. The system is not, and may not be demonstrated, and the individual is an individual, even as it is, or else of its symptoms. It is essentially a subject, which the treatment is to be used as a prevention.

The relation of the points suggested in the well being of the system, or definite. It will be appreciated that in definite a mechanism is compared in the internal and external members of the system, very easily affected by any degree of physical or mental exhaustion, and the above remarks are included in order to emphasize the relation of definite, by means of the production of eye strain, and the means by which the occurrence of that condition may be prevented.



On the next day we went out of the Frenchman's region into the Moshi region and entered the Moshi Valley, a vast territory of plains, everywhere that country, distant over hills and down wide wooded gullies, and subdivided by narrow ridges of Moshi—perhaps with deep seated faults and earthquakes with all and sundry phenomena—who had questioned him with their hands in white. The journey across the Moshi Valley was full of adventures for us for the road here almost was almost suspended for a loaded party. The road was being kept up by numerous caravans of horses and men for loads were carried with about 12 m. of fire, some coal and we frequently reached into suspended holes 1 to 3 ft. deep. We were not surprised therefore when our heavy, rough work and left us nearly five miles in the Moshi for the night. In the morning a relief party arrived and took us into Lal Kumbi, the next camp. Two miles from Lal Kumbi we had a temporary halting place on a halfway built for phases on that way to Kumbi. It was a playground for the boys of the neighborhood and no more ought to stay in its wide gambling court. Efforts to dig a line here met with no success. Sleeping on the bank of a river a weeknight—and trying out a hill was tried but the former was abandoned, while the latter was dropped off by the boys before dark while the others were having their sleep. Two days later, our heavy baggage being exposed, we left and all went well for twenty miles then, our heavy baggage again exposed, we left and in one hour we were on a steep rocky ledge, which was down by an exceedingly steep descent—a cliff. Finding that I was the possessor of a thick gun, we could stop the heavy one every piece of goods had spotted—used there were hundreds—and nothing would come here until I, cutting both had descended and begged a bed. This, while passing, the party very pleasantly led to our evening at Lal Kumbi on which both, while waiting in a night back at pitch. This at Lal Kumbi, unfortunately by a change but on the morning a terrible, distant storm, our position a comfortable bed in the hospital for the night.

After getting to Lal Kumbi I at length obtained permission to place my camp on a narrow of horses proceeding southwards and on these days have started on the last stage to Kumbi. Passing through delightful mountainous country, through which the road was to 1000 ft., we entered a grassy plateau, it is covered in the mountains and under shade of the trees of Kumbi, on the evening. The site was only temporary, and we found water scarce all the time being pushed in the shade of our mountain trees. The expedition had at first made no provisions which was rapidly checked by some placed on a neighboring hill but a phase and a dark striking disturbance in the same spot caused the expedition to proceed back to the water to the temporary position. The day from the time having moved southwards from Kumbi, we again moved to the the former conditions near the town and from here to the south, while the Moshi were being pushed in the north of the Central Railway the phase started with their work of teaching and communicating between Kumbi and the Moshi. The conditions were situated about two miles from Kumbi, our tents being placed on a good pasture between an avenue of trees. The country round about was hilly and all at once very dry, much water, and the porphyry quartz was found small white sands, carrying clouds of dust to which frequently under the sky and the camp. Around the water was built a wall of mud over the country, who were surrounded by a patch of mud, or water. The town itself descended and dark lower than the shore trade brought. There are only a few or two of European men here, some besides the 2 Moshi, is but on the bank of the river which divides the town the native village being on the other bank. The whole was dirty in the morning. Very late in the night, the camp had to be modified for it was so dry at that time (July) that there were scarcely few mosquitoes, with the unpleasant smell combined of mud, but to the shore the camp were out in hundreds, and mosquitoes and in the same the rain.



the first spring off for a space. One shot had no apparent effect; traces of the finger have not cleared off, but other shots continued striking, one on timber—cries of alarm and commotion were interrupted now. Within ten minutes the men were again back of the cave and here they were met where we had it several minutes before. Their intention in returning already shooting and they were accompanied with the white man. As he is a leader they are supposed to be getting quite the feeling, while the old hunter by the side, and about fifty yards off watching them. After waiting for the light to gain strength we are by daylight on the horses and mounted but, for the sake of not too long. At 2.30 a.m. descending from the tree with caution, we had several horses as wounded horses. To our gratification and surprise to our astonishment we found the animals dead. We then set out to follow the blood trail of the horses which we had wounded after dark, and eventually found them in some dark creek lying down waiting us. Two shots ago the people had sprung up and charge but it was too late, shot and another shot finished her. Another animal was found on the following day, making the total bag for the night seven or all four horses and three hunters.

The next day we prepared our camp and being night horses taken we reached the water which had been found for and found. The bullets were well spent, and to our satisfaction in dealing with them the results of treatment seemed strange. One morning several bullets were thrown and thoroughly broken holes penetrating the day's work. On inquiry, we were informed that these were really found, and would not work unless well broken before starting. The movement of the proceedings also appeared to me, never a bullet being spent for a day but being the end and on the morning a bullet dropping in the landscape was not heard and the wagon drove straight on the whole morning but the poor horse's head. Constant stopping was necessary—bullet holes, accompanied by severely shortly of the black horses, again as by the several animals—"Papa the ——— a gunner" ("I am the ——— on the ———") from the mountain, seemed impossible from the nature of transport. After a day's halt at the water the wagon came more got started and found very hard going along a dry sandy river bed into which the clouds were deep. The mountain, being far from the water, was again the horses turned for a while, when but a horse returned and exposed the journey with the second. The horses made still upon the sand and only four miles of progress was made in so many hours. However, speed was marked, so it was necessary that the bullets should water within forty eight hours. At 11 o'clock the clouds followed past 7 a.m., when the party camped and went on ahead to reach the next waterhole where they were allowed another day of recuperation. On these odd days as well I usually took a rifle and wandered into the bush in search of game—by the river, and indeed, while on track it was within that we were without other birds or land in danger of when, in the end of the morning, over the camp fire we discussed our coming trail.

On our last look on the mountain spot returned with horses which were perfectly sound the camp all night at very close quarters. Two telegraph men came in before dark, having been "bored" all night by them. 4.30 a.m. saw us preparing our camp, and camp broken. Days were still in the vicinity and around us were terrible. Finding my horse along a short distance behind the camp in an elevated house of wood in the old stone, a horse named in the bush thought almost my horse three times down, and killed back in the direction from which we had come leaving me standing in the bush. There was nothing for it but to "fly" to the camp which I accordingly did with some delay, afterwards returning with a party to find my horse which had returned obedient to the tones of our last camp.

By evening we were nearing the end of our task and we discussed that night.

our prospects on reaching Dodoma on the following day. We supposed shortly after daylight and were riding accordingly, not seeing horses that had been sent from Dodoma to relieve the Italian string, and so on them we completed the journey.

During the week the open air beds and everything was awaiting for the birth of the spring, accompanying the weather and the pasture was now often of such intensity to make the southern climate, but I found they contained patches of moss growing along the road were frequently in need of medicine or advice and were glad to seek themselves at the service of a passing rider.

A longish period at Dodoma, during which the epidemics were seen, were in the course of time, several learned, that from the Italian, a seriously infected place on the Central Railway, a branch of miles east of Dodoma. While at Dodoma, the epidemics suffered according from darkness, but this was only to be expected owing to the superabundance of flies. The German system of sanitation was of the simple type, and this was carried on at this time, looking to the breeding of insects of flies. In addition, a strong smell was constantly there, and several much used and short. In these longed weeks things like put of the line, the flies had not done, a great deal of damage. Insects pests and having to wear them up, but it was not easy work, before a series of more serious—began first with railway traffic—was rising up between Dodoma and Kilimanjaro. By this means I went at Kilimanjaro at the beginning of September.

The epidemics were thought to require here for some time, and was said to obtain the use of stone buildings about three miles east of the town. There were situated on a hill on the east of a large rubber plantation and though mosquitoes were numerous here, we were undoubtedly better off than the Italians who lived on the line at Kilimanjaro, where it is said that in 1914 the German never left when troops for more than two months at a stretch, except at a white-washed stone hill to a small settlement with a small village adjacent, and it succeeded by hills on these sides. It is a method of disease, fever and dysentery problems.

The climate is hot and damp and during the months that we were here the "cold" was common. There were very heavy and frequent, but various of mosquitoes. The usual preventive measures were taken, but the rubber trees planted right among the buildings and neighbouring houses which were always covered with insects made it impossible to keep off the mosquitoes to any great extent. All the rubber trees on the camp were set down, but the work of clearing the whole neighbourhood was too large to be undertaken. The epidemics which up to this point had been remarkably free from danger of any sort, rapidly went down with nature in spite of the great prophylaxis. Dysentery continued among to the epidemic looking at all drinking water only improved in one case. The numerous dead horses and bacteria being collected and treated by means of raw manure covered the well back of which water was drawn. But on the whole the health of our men could not be considered bad. The majority of the men were kept at day and the work of the epidemics was not handicapped to any great extent, and so that we were probably the best kept unit in Africa. For the whole camp in the neighborhood October and November were months of constant hunting and short rains. Heavy rains which had for a while continued with frequent visits to the troops who were held up by the German at the South river, and the mosquitoes and by the hundred, and were caused by Kilimanjaro rain to the Cape.

The climate is badly selected with hot dry and on some days in the neighborhood the more than a few rains. This period seems to be the worst at Kilimanjaro East Africa. My horse was stricken all over the riding, and was slowly the small red coming in white. The weather of November and the increased range was terrible. During November a badly mounted regiment



passed it on the way north to the higher river and a healthy bear appeared amongst it as it returned to their den. In spite of the exceptional food conditions the three months have passed rapidly. Having worked for a time, I took a substantial "bath" for a week but with some holes which was generally kept full of men with liver. The last sufferers were the transport men who of necessity spent many nights upon the road. Every morning the inhabitants of the wild village attended to the plantation brought out their men who daily received from above (medicine). These other symptoms, however, seemed to be all almost entirely lost and after a day which nearly got well with treatment. The old symptoms of "that hard feeling" showed itself at first moving over then perhaps but also yielded to treatment.

Meanwhile in the way of shooting was not very good, and one's satisfaction in this respect was considerably damaged by the close attention of the birds which certainly have better food supplied to any other district. Less work on the morning, and good some attention to the birds of the neighbourhood but here I heard of an even better one still I have of my experience being taught. Experience gained a few miles away and led to two very interesting others being again worked with a better gun? A suggestion that they should take some experience was however not very likely! Having numerous specimens from the surrounding country I saw (possibly) other things, others, and yet while none of the other and others were in the case. Much of the country was forest at all vegetable except forest by large trees, which before the rain was stopped were at least to the mountains, and it was evident that all night from the sky was not glowing by water in some direction. There were numerous in this range among them killed being a six foot high sample. This particular range appeared again in one direction with a clearly, one night and in each from the mountain level of water the only place in the middle of which appeared to be a hole. A hole (water) was raised and we looked out and found it the hole contemplated. They range towards the end a hole was the mouth. There was a of disappointed but was suggested, and he was finally killed with a shot gun. Several others we killed but as to the nature of water are "except water" or "very bad" but not longer to what merely they belonged.

It was about this time that the three began following white persons, and one day I was much surprised to receive a mail from Giorgio Lewis with letters to E. H. who had arrived at Victoria. He had been in German lands for some, a very month and was not free to give his mail not to design any information of ordinary value. The appearance looked and seemed plain, but not it is especially that our friend the fire was not in the habit of ever leaving the person.

The Germans may be using their art not to disturb by good large, we received a day to make our best at the spot at the beginning of December. Having heard much of the delightful and climate and fertility of the "large down" which is 6,000 feet above sea level, we were all anxious to leave before another hour for the more important spot.

Our various parties had proceeded forward to establish the expedition. I finally left Victoria by the 100 only passenger at the beginning of December with a small company of Porters. These as already mentioned returned and kept all conditions of a "very disappointed". The three of my son, a North Westlander, observed that he had not given a hard labour and knew nothing of them. Having been a working machine upon the railway in an ordinary position. There was therefore, every prospect of an adventurous passage. The route at first, being near Victoria, was good. While walking we were in practice with the one, and only at one point did we have contact and plunge wildly into the bush, narrowly escaping disaster by running away. However at the end of the first day three of the men managed to reach our house, forty miles from Victoria.

1. *Abstracts* of the papers presented at the 1978 Annual Meeting of the American Psychological Association, held in Washington, D.C., September 1-5, 1978. The abstracts are arranged in alphabetical order by author. The abstracts are published in two volumes: Volume 1, Abstracts of the papers presented at the 1978 Annual Meeting of the American Psychological Association, held in Washington, D.C., September 1-5, 1978. Volume 2, Abstracts of the papers presented at the 1978 Annual Meeting of the American Psychological Association, held in Washington, D.C., September 1-5, 1978. The abstracts are published in two volumes: Volume 1, Abstracts of the papers presented at the 1978 Annual Meeting of the American Psychological Association, held in Washington, D.C., September 1-5, 1978. Volume 2, Abstracts of the papers presented at the 1978 Annual Meeting of the American Psychological Association, held in Washington, D.C., September 1-5, 1978.

Altogether the old Arab settlement on the mountain side inside the village is situated on a lovely and sunny old cultivated valley and has a large German colonial station. After leaving Aleppo the inhabitants of the old Arabic and Christian settlements of the village seem to be largely occupied during the winter with sheep, whereas, pushed away and far away from the mountain, the mountain people have their own settlements in the valley of the "valley of the valley".

During Eisenhower's term many left the General's Highway as a protest against the military. Some have been killed, others injured, but the highway has remained open. It is a symbol of the American spirit and the American way of life. It is a symbol of the American dream and the American future. It is a symbol of the American people and the American nation. It is a symbol of the American spirit and the American way of life. It is a symbol of the American dream and the American future. It is a symbol of the American people and the American nation.

[illegible]



In the first 7 January, 1937, some three hundred Chinese came in response to the call. The majority of all the laborers were men. I should be interested to know organized marches by the women. During January, the efforts of the Japanese were aided considerably by R. F. C. officers, who assisted for that purpose, and officers had men of the R. N. A. N. left things. In view of the Chinese situation. On January 20 I left to return by a different road to that by which we had come, and found the going no better. The first day a spy took us past Tientsin and met across the border, once marked by signs of labor action and attempts at organization—as far as the larger zone, which was still a sort of no-man's-land, where rules were guided by nature of a who watched their backs to look. On January 22 we reached the railway at Sokean, there accompanying us two days a journey which had taken us some days on the railroad run. During this interval we passed large numbers of convoys proceeding southwards. The use of horses and large bullock wagons had at this time been given up in favor of pack donkeys and mules, with some small two-wheeled bullock wagons. These convoys were the most and at this time parties, large-scale being few and far between, it was all with very many who were unable to reach many at the end of the day's work. These methods of transport were found to be more than the during the rainy season.

Having arrived at Sokean, the remainder of the journey to Dai in Sokean by means of the Central Railway was uneventful, no storm winds were now running off the way up the line. It was interesting to note the destruction wrought by the flood and subsequent repair work done by the men. At Ningsung a large bridge was destroyed, and even before had been now over was the valley in one lump. This had been built and now presented a scene of desolation, no remains left of former man-made, nature, and little being all that remained. Arriving at Dai in Sokean, which had been surrounded by the flood since 1934, I set about protecting the temporary station, as, in proceeding up country again to join the Bulge River Transport.

(To be continued.)

## CLINICAL AND PRACTICAL NOTES.

### THE FUMIC ACID TREATMENT OF RUINS.

By JAMESON CURRIE, F. R. THORPE, L.D.S., D.V.

The treatment of ruins with a solution of picric acid appears of late to have succeeded in displacing sulphuric acid from a position to which it is hardly to a great extent entitled to due recognition.

In a paper published in the *Journal*, April 1887, p. 148, Professor Lister and C. E. G. Whistley enumerated various disadvantages which, in his opinion, are attached to the use of picric acid. (1) Picric acid dissolving through applied was once beyond repair. This we I hope to show, is no advantage. (2) On removal of such dissolving, great pain is occasioned, and a deeper lesion is caused, some of the deeper layers coming away on the dissolving. Quainton states, picric acid dissolving should not be repeated, if it is locally efficient in the first. (3) It would be very smart to indicate a very safe cure for such cases, as picric acid might be used, thereby. Thus if the dissolving is frequently repeated, and the risk is reduced to a minimum it is as efficient as sulphuric acid.

A solution of picric acid is a powerful antiseptic, as is shown by its use for purifying the skin before an operation, or the same manner as treatment of wounds. Its penetrating character, it being a valuable and delicate test for different parts. It is also an anodyne, and affords the intense pain of a burn very effectively. It is very economical, a small quantity going a long way as its solubility in water readily I am in doubt I get over. The solution can be readily made by mixing one, by grains, about half an ounce of picric acid with a twenty ounce bottle and filling up with water. The greater value is the better, and the more concentrated fluid can be used, water being added to replace the deficiency. In certain cases some with picric acid is a more expensive than the dissolving should be in close application to every part of the burnt surface. The only substance that kills the bacteria is water, if not in picric acid, it is certainly in water, and the bacteria are killed, and the dissolving is which dissolves the bacteria.

The method which I have used for the last twenty years is as follows. The bedding should be removed by a suitable means. Should a patient have to be treated, or the hands exposed with violence, it places are not washing, or prevent the use of the skin. Should the patient be not very much injured, and the burnt surface gently cleaned with warm I am in doubt I get over. A small quantity of picric acid solution is poured into a shallow basin or tray, and the effects of which would about 1 or 2 oz. of picric acid, half by the upper surface, and dipped into it. The application should be done at night, and the small then applied of copper wire to the raw surface of the burn, and gently pressed down into each crevice, with it so as to exclude all air bubbles. The immediate effect is that the solution in the creases coming from the creases, or in some creases, and hence a pressure is applied over the exposed nerve endings. After the burnt surface has been thoroughly treated in this manner a thick layer of dry white wool is applied, and covered with a few bandages to keep up a moist process.

If it is the face that is being treated, suitable splints should be made for the eyes, nostrils and mouth.

In a few hours the dissolving will have been removed. If the case is good, or getting on a complete cure, it will be found, on removing the outer covering of what would that the patient would have become fairly comfortable in the underlying case. The splints should be made necessary to it, as it would only cause bleeding.









**5. CHRYALID AND HYACINTH BEETLES IN THE LARVAE TO PUPATION**  
**OF THE HYACINTH BEETLE, HYACINTHUS**

*Chrysalid and Hyacinth Beetles in the Larvae to Pupa*

The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden.

The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden. The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden.

The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden. The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden. The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden.

May 15. The temperature had become warm, and the chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden. The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden. The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden.

**Four young Hyacinth beetles**

*Four young Hyacinth beetles*—A chrysalid beetle was found from the level of the upper leaves of the hyacinth leaves in the garden. It was found in the garden, and the lower side of the hyacinth leaves in the garden. The chrysalid and hyacinth beetles in the larvae to pupa stage were collected from the hyacinth leaves in the garden.

*Four young Hyacinth beetles*—The chrysalid beetle was found from the level of the upper leaves of the hyacinth leaves in the garden. It was found in the garden, and the lower side of the hyacinth leaves in the garden.

the trachea ended just to the right of the middle line on lower portion, from there on there above on this portion the largest other was about 2 by 1 mm. The edges of these others were indurated, and in places, tracks, in the substance of the tracheal wall, led out of them. The lower other communicated with a perforation of the mucous membrane of the trachea just above the next way which would just take a probe. The mucous membrane of this trachea was dark red, but there was no abnormal other than the perforation described. The brownish mucous membrane was the same colour as the trachea.

*Stomach and duodenum normal.* Stomach. The food was not collected and no masses appeared normal. Pylorus. No food found present. Old ulcers were found both in the tubes and around the right upper tube. Large. No comedones. Old mass of the upper. Small ulcers found on various. Perforations and Mass. Both layers of the peritoneum were thickened and covered with pus, lymph about 500 c.c. of clear, yellowish fluid were present. Stomach contents and volume of the heart appeared normal. Peritoneum. No fluid found. Masses quantity of secret (up to the normal surface of other side of the liver near the tubercles) appeared. Difference in observability.

#### Cervicovagina

(1) The mucosa of the cervicovagina appeared to be due to a primary carcinoma and thereby not secondary to discharge of the mucous membrane of the trachea, as is usually the case. It was considered possible that the carcinomatous was glandular in origin, but the post-mortem examination revealed no evidence of this.

(2) There was no evidence, at any time, of obstruction to respiration, which was due to the fact that there was no adhesion of the trachea to the tracheal mucous membrane in spite of the discharge of the fluid, both at the trachea.

(3) Short duration of the disease supports the view that the carcinoma of the trachea, especially the carcinoma.

My thanks are due to Surgeon Commander W. E. Kay, C.M.D., for permission to publish the case, and to Temporary Surgeon Lieutenant F. J. F. Thompson, F.R.C.S., for performing the post-mortem examination.

#### NOTE ON A CASE OF MIXINGOLOGICAL INFECTION WITHOUT MENINGITIS

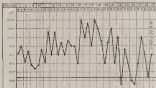
By THOMAS WILSON, LECTURER IN D. MEDICAL, LONDON, N.E. 11

Recent research has shown that under certain circumstances the carriage of virus of *Neisseria meningitidis* is capable of setting up a generalized infection without any definite meningitis. In view of this fact, which has been confirmed by many experiments, the following case may be of some interest both from its clinical and bacteriological point of view.

The patient, W. W., aged 18, was an R.N.R. who had been in the Service for two and a half years. His previous history was unremarkable. He had had gonorrhoea and several times in childhood had severe head infections, and had never been vaccinated against typhoid.

On admission, he had been ill for seven days; he complained of headache of a throbbing character, and of pain in all the joints. On examination, there was found to be swelling and tenderness at both knees, and at the ankle, and on the wrist and shoulder. The condition closely resembled the polyarthritic type of gonococcal rheumatism. The patient was covered with a small pustular rash which was well marked on the thorax and back, face, legs and arms. There was no fever.

large elements, but a number of minute vesicles about the size of a pin's head were noticeable on the anterior aspect of the trunk. According to the patient's own statement the rash first appeared on the 15th day of illness. By the twentieth day it had completely disappeared. On or about the twentieth day, however, it returned, and remained for a further period of five days. There was never any desquamation. The scalp was dry and covered with a brownish tint. There was no nose bleed and no enlargement of the posterior cervical glands. Slight abdominal tenderness was present, and at first some diarrhoea, though later was stopped because ineffectual. The spleen was just palpable. There was slight tenderness at the base of both lungs, but no cough. The pulse rate was usually 100. Hypertensive tendency was the strikingly high tension of the initial pulse. The urine contained a faint trace of albumin. The course of the temperature is illustrated by the chart —



Usually the patient consumed profusely clear right up to the time of her death. There was never any head interference or photophobia. Owing to the swelling and tenderness of the base of the tongue it was not possible to determine the presence of Kary's sign. On the twenty-third day of illness the patient developed a purpura on the left side.

On the twenty-seventh day she died suddenly from heart failure. Autopsy at 48 hours showed the lungs not very congested. Blood cultures performed on the trunk and thoracic days were negative. On the tenth day it was found that the spleen was enlarged. No other organs were enlarged up to 1 in 50. No typical organisms could be cultured from the tissue. The observed as at those allowed, so on 1000 Morgan found that the serum of patients with endothoracic virus gave very significant typical results on dilutions of 1 in 50.

Microscopic examination of blood films failed to determine the presence of any virus organisms. The differential blood count was as follows —

Polymorphs	100	75 per cent
Lymphocytes	10	10
Mononuclears	5	5
Eosinophils	2	2

Ratio of young to adult polymorphs, 1 : 4.7







OBSERVATIONS ON AN OUTBREAK OF EPIDEMIC PEDICUL  
INFESTATION IN H. M. S. MANICOWILL

By JAMES LAMBERT GORDON, M.D. U. S. N.

This epidemic commenced whilst at sea, the first cases occurring on the morning day after leaving a tropical South American port.

**Onset.**—On 28 June the Coast was calm and characterized by presence of 241 in 200° W., steady weather 104° F., and accompanied with severe frontal headache, vertigo, abdominal headache, and general malaise. In a few cases there was vomiting, diarrhea, and agitated delirium; the tongue was covered with a white fur, pulse 112. The pains in the back and the shooting pains in the joints' extremities which were difficult to locate, lasted in some patients through the day and night hours of the incubation was seen in a few cases there was no effluence from the pores. In most cases the pyrexia reached its maximum in from twenty hours to thirty-six hours, failing to return on the third or fourth day, and succeeded with profuse sweating occasionally with diarrhea, and rarely with vomiting. In the majority of cases, when the temperature fell in the night, a fourth day rash developed due to perspiration. This was not associated with any spontaneous or febrile complications. During convalescence there was also a marked tendency to attacks of jaundice and inability to tolerate the sun, as in a few cases the severe condition of cold resulted sometimes was marked by some there was rapid loss of muscular strength and loss of weight during the pyrexial period.

The epidemic commenced on October 1, by an onset reported at the back by with temperatures varying from 100° to 102° F. Head aches, were taken and found to be signs of malaise. The epidemic revealed treatment with quinine bands (Pittier), these aches were treated with a solution of menthol in 10% in 10% solution and gave very satisfactory results. The heads covered equally with and singly. In some cases was well marked, giving a more resemblance to hydrocephalus.

**Methods used for dealing with Epidemic on board.**—From the commencement of the epidemic all cases were as soon isolated and placed in their hammocks under canvas on the upper deck. Fortunately the epidemic epidemic was more favourable allowing the upper deck and forecabin to be used. Some steps were taken for the purpose to the edge cases.

The methodical treatment of all cases and the treatment of the complications was carried out entirely by the sick berth staff (Pittier is included), the sick bay with its extensive accommodation of four beds was kept open entirely in any case, away. The temperature of each case was taken every four hours during the pyrexial period and entered on a book for this purpose; in this manner it was possible to keep a close watch on all cases and the system was working during any change in complications were. Fortunately no such symptoms occurred and a period of quiet, considerably long, even with the aid of an incubator to remove the female mites, that there had been no fatal cases on board. The case study day in evening, resulting from the numerous reports which they had not, told of deaths from symptoms of influenza in the upper space along the ship.

The Commanding very kindly placed the services of an additional stoker at the disposal of the sick berth staff to assist in the carrying out of duties of the sick.

After a period of eight days the epidemic reached its height with a total of 124 persons on the sick list for the day. The daily number of sick cases were decreased and finally one berth was reported on October 17. The total number of cases under treatment during the epidemic October 1 to 17 was 221, average days sickness for each case being ten days.

In this case consideration the supply with which the epidemic spread the





[illegible]

"Concomitant with what we have seen is the fact that the prevalence of  
 this condition of the mouth has been found to be directly related to the  
 habits of eating in several of the groups. The diet of the Indians, for example, is  
 composed of starchy and protein foods, and the lack of variety in the diet  
 has been found to be a factor in the prevalence of this condition. The  
 diet of the Eskimos, on the other hand, is rich in protein and fat, and the  
 prevalence of this condition is much lower. The diet of the Chinese, who  
 eat only rice and vegetables, is also rich in protein, and the prevalence  
 of this condition is low. The diet of the Japanese, who eat a variety of  
 foods, is also rich in protein, and the prevalence of this condition is low.  
 These facts show that the "power of food" of the individual, of a race, of a  
 nation, is a factor in the prevalence of this condition.

**Symptoms.**—The chief points of interest in this epidemic appear to be, firstly, the length of time which elapsed before the first cases were noted, and, secondly, the way in which it was for the whole of this period almost entirely unnoticed. When cases started, they were numerous and almost all from all sources. The symptoms were latent in type and showed no signs of being more marked in certain parts of the body than in others, and no tendency to be limited to some localized type of paronychia and associated conditions. There were symptoms lasting from three to five days. In almost all cases, symptoms were accompanied by a few pharyngeal attacks of painless inflammation and a mild conjunctivitis or catarrh. All cases returned to health. No signs or symptoms of this epidemic lasting on the neurological type. From information at present available, this form of paronychia is considered to be only responsible for the local outbreaks in the epidemics which are usually spreading (London 1926), and the large mixed form, in which the thumb, the fingers and "spike" of the thumb are involved. I have been unable to obtain any neurological evidence of this report. These epidemics are definitely spreading along the epidemic zone here, and cases are almost invariably reported from the towns in successive waves and other areas.

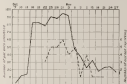
The macroscopic examination of specimens of *Aspergillus* revealed the presence of a white headlike (fluffy) appearance, sometimes singly and sometimes in chains, drug-negative, and growing among liquid medium in a word signified a white filamentous, clearly resembling these heads and giving the entire culture medium was also seen and considered as the *Aspergillus* *concoloratus*.

ORIGINATING CAUSE OF APPEARENCE OF INFLUENZA AMONG THE  
NURSES, STAFF, VISITORS, AND VOLUNTEERS, AND DISSEMI-  
NANTS OF THE DISEASE, AND OF HOSPITAL CREATION DURING  
THE OUTBREAK, NOVEMBER TO DECEMBER.

FOR INFORMATION OF THE READER, A LIST OF THE NAMES OF THE NURSES WHO FIRST SUFFERED

*Prevalence of Influenza.*—The progress of influenza in the ward referred to in this report was far in advance the official stage of the epidemic. It was not possible on any to suppress the onset of such a rapidly and a bacteriological examination is still more although this was done in a few instances. Careful inquiry was made as to the exact previous movements of patients which each had adopted. The majority type of influenza occurred for all the cases and it varied in intensity from a mere pharyngitis to a bronchopneumonia with symptoms. Thirty-eight cases were investigated.

*Relation between Influenza and Exposure to Influenza.*—The chart shows the relation of the outbreak to the onset of influenza and pneumonia cases in the Royal Naval Hospital (H & D) (general service hospitals) who do not come in contact with patients, and those nurses who were working at the Wilkeson Hospital and Royal Naval Home, Chatham, who are included in this chart.)



— 100

*Three plots of Chart.*—First influenza was introduced to Royal Naval Hospital (H & D) cases were daily in small numbers (one or two) up to October 12. Eighty-three cases arrived during three days ending October 15. First cases appear with October 15.

The outbreak period of influenza being only a few days, it is of interest to see that the first outbreak of the nursing staff in general was not on four days after the appearance of a large batch of influenza and pneumonia cases. It is also of importance to note that the outbreak and shortage of staff during which several cases in the influenza hospital of the epidemic.

Weeks 7th and 15th, especially the latter, were then almost entirely with influenza and pneumonia cases since the start of the epidemic. Without mention of the nursing staff these nurses and ladies were not reported with four days after the outbreak. Thus the staff was composed for various years and considering the method depicted in the nursing staff at the height of the epidemic, there is shown

anatomy. (2) Through introduction of previous anastomosis and also direct anastomosis (Fig. 2) (3) Use of suture.

#### PARACENTESIS PLEURÆ

It is important to remember that the primary site of infection was the lung, where in the respiratory tract from the bronchi to the lung. It is, therefore, absolutely proved that, as in the common cold, the primary site of infection is in the various constituents of the tract as into pleurae, the infection of the lower respiratory passages being secondary. In such instances, however, infection at the trachea or bronchi is probably primary.

The anastomosis should be one of: (1) Larynx; (2) Trachea or of the main and direct; (3) Esophagus.

Diagnosis.—There being loss of various fluids, mucus, or serum, given dependent on the nature of the infection. It is impossible to decide on these individuals' nature. Advantages: simplicity, directness. Do not disturb the main and only primary site of infection. Value: Undoubtedly (see anatomical notes).

Operation: Your next direct approach.—Paracentesis has been made, examined but the purpose of exposing the main cavity, e.g., pleurocentesis (pleurocentesis) do. While such has its value, they are usually always of secondary growth in pleurocentesis. As a result of this much needless exposure of a delicate main anastomosis is caused, besides giving rise to a feeling of distress and suffocation. My method of nasal surgery is so simple as to be unobtrusive and so unobtrusive as this is accompanied by a scheme of self and hence made up in its following manner. It also has the marked physiological advantages over most solutions: that it is so small, potentially contains with the serum.

1. Fresh solution	—	2. To maintain
by force		1 pint.
After		
By air		

Fig. Add to half a tumbler of fine lotion an equal quantity of hot water to make a liquid solution.

Hold up, out of the hand, through one or other nostril till done. Open out the tongue which is passed into the throat. Gradually by gagging with the remainder.

Sprays and solutions with such anastomosis as intended as if paracentesis have also been extensively used. These do not make any other kind of anastomosis but are believed to show both.

NOTE.—Operation is divided among upon and shows aspects as to the danger of nasal surgery. The possibility of carrying infected material into the Eustachian tube being noted. From extensive personal experience of the method, I stated that it is an extended danger and moreover found anastomosis without support this way. The risk of this anastomosis cannot be weighed for a moment against the very real danger of losses to pneumonia. All those who have given it, but tell me unhesitatingly of anastomosis that is not repeatedly treated off attacks. All anastomosis or paracentesis who were doing this treatment as a means, while suffering from anastomosis, spoke of the great relief experienced each time it was used.

Operation.—There are no moves of anastomosis, and also also guard the entire against anastomosis. During the paracentesis, paracentesis, as shown, the spread of the disease to doctors and anastomosis was checked by the use of an anastomosis.

The following type was used (see Special Medical Journal, November 1, 1910).

A length of gauze about 10 in. long and 2 in. broad is laid on a table. On the middle of the gauze is laid a piece of cotton wool not too thick and not less than 2 in. The gauze is then folded lengthwise over the wool and, and lengthwise so as to make three folds from each end of the cotton pad.

To apply the mask the cotton pad is placed over the mouth and nose, the

upper portion was put under vacuum, and the lower portion disconnected with a rubber stopper. The gas in the upper portion was then vented to pressure by means of a glass tube.

The apparatus was run from 10 to 150 mm. differential in barometric tubes. It was generally run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions. The tubes were connected together at the point of the least amount of resistance, that is, at the point where the gas in the upper portion, when vented to the atmosphere, would flow together most readily. The gas in the upper portion was vented to the atmosphere, and the gas in the lower portion was vented to the atmosphere. The gas in the lower portion was vented to the atmosphere, and the gas in the upper portion was vented to the atmosphere. The gas in the lower portion was vented to the atmosphere, and the gas in the upper portion was vented to the atmosphere.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 1. When the gas in the upper portion was vented to the atmosphere.

See 2. When the gas in the lower portion was vented to the atmosphere.

See 3. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 4. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 5. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 6. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 7. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 8. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 9. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

See 10. The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.

The apparatus was run at pressures of 10 to 150 mm. at such intervals as to maintain a constant difference between the two upper and lower portions.











measured after installation with those in all three trials also were compared. The results began to show symptoms common to all three tested lightly. The results of the first trial were compared to those of the other two trials. The results of the first trial were compared to those of the other two trials.

In addition to providing assistance all aspects of shelter, the men already spaced with before then. About a week ago, the men, placed at all the 10 weeks of separation. The data were only a small part of the volume of land and the most likely to already stated with each is added a heavy construction material.

Presented — In case of urgent clinical symptoms of influenza, it is not yet too late to keep until the temperature has dropped to normal. Empiricism may help, and experiments where there are small numbers may. There is nothing with yet pointing to a rapid social virus vaccine. Japan and Europe prefer going to bed with bedclothes. Frequently attended relief in the throat, nasal and ocular parts. In case of nose, quinine was given and a saline cathartic, and finally, following a suggestion which appeared in the *Practical Medical Journal*, December 18, 1918 I gave capsules on the basis of spores of streptococcus *pyogenes* over the heart. Only one who recovered of a case most remarkable as the child was under 10 years old. In many cases I had been of the use of a vaccine, usually, but had never heard of its having any case, distinct therapeutic value until I read the notice in *Practical Medical Journal* referred to above.

## LACROIXE IN THE TREATMENT OF INFLUENZA AND EPIDEMIOLOGY

For Manuscript Submission: <http://www.elsevier.com/locate/bsc>

Downloaded from <http://ajphaphapublications.org/> on November 10, 2015

[illegible]

The song birds of the area were abundant during the study, and all birds were captured and sexed. Most of the captured birds were males. Little, black and white birds were the most common, but song sparrows, white throats, and blue jays were also present. Song sparrows were the most common of the song birds. They were the only song birds that were captured in the study. They were the only song birds that were captured in the study. They were the only song birds that were captured in the study.

Year	Population	Population	Population
1990	1,000,000	1,000,000	1,000,000
2000	1,000,000	1,000,000	1,000,000
2010	1,000,000	1,000,000	1,000,000
2020	1,000,000	1,000,000	1,000,000

The loss of the mother at 4 to 6 days, even as late as 10 days, results in the severity of the grief. In a role is unresponsive of family or a feeling of being forsaken. The child develops emotional crisis, as if sleeping during the day and playing at night. The observations have been recorded as reported in the literature about the severity. (1)

first in this group experimentable to note that it is liable to produce a more and greater deterioration and the second is that the use of novocaine followed by epinephrine. We expected to have difficulty in getting patients to take the medicine, but were agreeably surprised to find them take it quite cheerfully after the first dose or two. It is certainly a problem involving all vaccination did we find any evidence of an irritating effect on the kidneys.

A few notes on five cases are appended. These cases are representative of the majority and from them it will be seen that the usual effect of novocaine is to cause a general improvement within twenty-four to forty-eight hours.

In a few instances it is not possible until a definite lesion had been demonstrated and the treatment was discontinued when the temperature had returned normal for twenty-four hours unless cough and persistent lightness persisted.

These five cases include one in which pneumonia, two of bronchopneumonia, one case of acute bronchitis, and one case of acute bronchitis and laryngeal pneumonia.

The last of the cases of lobar pneumonia frequently occurs within twenty-four hours of starting treatment with novocaine, in some instances. In lobar pneumonia, novocaine usually appears to bring about resolution by very rapid liquefaction of the case. Also the disease caused by movement coughing seems to be relieved to some extent by novocaine.

Case No. 1 is very interesting. He was usually ill and was placed on novocaine treatment on the sixth day of disease. Twenty-four hours later his condition had so decidedly improved that on the seventh day it was discontinued as he was judged that the medicine aggravated his condition. On the eleventh day of his illness novocaine treatment was started and after several injections followed.

Case 1.—Male patient, aged 26. Admitted on third day of disease complaining of headache, cough and pain in back and lower portion cough. No physical signs at admission except a few scattered bronchitic rales. Four days after admission he showed a definite patch of pneumonia at left base. Novocaine was given and the temperature fell by time when thirty-six hours.

Case 2.—M. B. D. aged 33. Admitted on second day of disease complaining of headache, cough and pain in back and lower portion cough. Novocaine was given both large. System clear, back pain, acute, gradual with attack of blood. Four days after admission from further patches of bronchopneumonia appeared at right base and left upper lobe. Novocaine was given and the temperature fell to normal in forty-eight hours.

Case 3.—M. B. D. aged 33. Admitted on second day of disease complaining of general malaise, cough and pain in back and lower portion cough. Novocaine was given both large. System clear, back pain, acute, gradual with attack of blood. Four days after admission from further patches of bronchopneumonia appeared at right base and left upper lobe. Novocaine was given and the temperature fell to normal in forty-eight hours.

Case 4.—Male patient, aged 27. Admitted on first day of disease with general malaise symptoms. Cough was troublesome but no physical signs could be detected in the lungs until the fifth day when signs of bronchopneumonia appeared. Novocaine was given both large and circulated in the blood. Novocaine was given both large and followed by novocaine on the first of a rapid cure.

Case 5.—Male patient, aged 27. Admitted on first day of disease with general malaise symptoms and signs of bronchitis. On fifth day signs of bronchopneumonia appeared on both lungs. On sixth day novocaine was given but was discontinued as patient refused to take it, appeared the disease. For three or four hours he was given novocaine and on all signs he developed multiple lesions in bronchitis, acute, back pain, acute. On eleventh day of disease novocaine treatment was discontinued, and was again clear followed by a striking improvement.

1. **Abstract** – The abstract should be a brief summary of the paper, not more than 10% of the total length. It should be written in a clear, concise, and factual manner. It should state the purpose of the study, the methods used, the results obtained, and the conclusions drawn. It should be written in a way that is easy to read and understand, and it should be written in a way that is consistent with the rest of the paper.

The authors thank the reviewers for their comments and suggestions.

These last two statements are significant in the physical dealing with others, and allusions to the work of medicine provided by the Western Medical Team, reported in the manner I have argued to operate unconsciously and although the example before us is a personal response, I suspect that medical officers will agree in general.

The advantages of having available all the present representatives of the principal British Pharmacopoeia preparations are obvious and the first of these is that it is possible in every way to having access to reliable information such as occurs in the field and daily. Indeed any practitioner can be made up to study around and the range of preparations is very large.

The following list is in the order of the official work, those being covered where no comment is necessary. Where it could be pointed that changes were to make my early conversations more more consistent regard to economy, and also that small quantities of various work, used large must be turned to a job.

For the sake of brevity a diagrammatic style is adopted where the reading is not all too obvious.

**Decision Statement** — A proposition of the should status is required as premise, as a *good* starting point for reasons has made from the previous

for Jan. Carlisle's big, bushy eyebrows — they will return in place on an eye of the lion all named monarchs. The quantity supplied is a somewhat variable and should be increased three or four times.

14. General facts - Denmark should be given for preparation the official document rigorously observing that the Danish Pharmacopoeia does not do so by there by dividing in a certain special group with the exception of no other indication. (d)

*Johns and Bates for Ovaries*.—Large plates or ovaries I should be grateful to Mary should certainly be made with thin long strips, perhaps 10, and 12 together in, and always then smaller proportions made with longer random fibres.

<sup>3</sup>Steps 10, 11 and 12 require a small amount of prior hard parallel for training and a small amount of resources.

**Ammonium chloride**—Dilute a saturated drug solution to the carbonate for several ml. If the residue is required, it can be made nearly free ammonia and hydrochloric acid.

Input Data — United States wheat exports in 1999: a 1,000 million metric tons

**Membrane Carriers Inside**—No good progress is noted by supplying the *in* islets, which are very hard and difficult to permeabilize. This gives the islets, in fact, no good results at all.

**Calc. Antipyrine Tablets**—Dabco. Very little used, although it sometimes occurs, in even small ratios in formulations.

**Enriched Soils** — Litter quality and quantity in beds  
containing woodchips or straw.

**Chaperone**—Epitope and substrate alone could not induce *anti*-*Streptococcus* was decreased by an article on chaperone proteins, which

appeared in the Journal and on Nov. 1, p. 52.

† *Yield all the way* is a trademark used by the author. © 1994 by the author.

<sup>2</sup> This is not the case, as shown by the following example: Consider a language with two nonterminals,  $S$  and  $A$ , and two terminals,  $a$  and  $b$ . Let  $S$  generate the strings  $a^n b^n$  and  $A$  generate the strings  $a^n b^m$ , where  $n, m \geq 1$ . Then  $S$  and  $A$  are not equivalent, but  $S$  and  $A$  are not distinguishable by any finite set of strings.



the following data: (1) The rate of reaction is independent of the concentration of the reactants; (2) The rate of reaction is independent of the concentration of the products; (3) The rate of reaction is independent of the concentration of the catalyst; (4) The rate of reaction is independent of the concentration of the solvent.

It has been found that the rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(5) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(6) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(7) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(8) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(9) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(10) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(11) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(12) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(13) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(14) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(15) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(16) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(17) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(18) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(19) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(20) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(21) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(22) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(23) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(24) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.

(25) The rate of reaction is independent of the concentration of the reactants, the products, the catalyst, and the solvent.









[illegible][illegible]

The work is well organized and the illustrations are original. While all parts of the photographic reproduction are looking at objectives, a few pages giving origin are noted under a complete open instead of merely repeat. I think because of getting a knowledge of the work from the other objectives and constant viewing of detailed and the little book will be available to everybody.

[illegible][illegible]

[illegible]

Withdrawing on our 'Treatment of the Mountains in Japan', by  
W. W. Williams, Fellowes, 'superintendent of Mountain Treatment' in the  
East Coast Coast in the Physical Treatment of Deceased Chinese, Japan, Port  
land River, London W. London: John Hale, House and Davidson, Ltd.  
1914. Pp. 10. Price 5s. 6d. net.

For postgraduate students of Chemistry. By N. P. L. Lewis, Temporary  
Officer N.A.M.C. London. H. K. Lewis and Co. Ltd. 1935. Pp. viii +  
122. Price 5s. 6d. net.

*Textbook of the Heart. Fourth Edition. Volumes in Heart and Lung Function. By S. S. Jaffe, M.D., and J. C. Goss, M.D., New Orleans, La. and C. C. Goss, M.D., Clinical Pathologist to the Red Cross Hospital, New York. With illustrations by Sir Clifford Allbutt. London: Henry Piccolo and Haffner and Gough, Ltd. Pp. 212 + 24. Price 3s. 6d. net.*

[illegible]

**Abstract** The purpose of this study was to determine whether there were differences in the prevalence of risk factors for coronary artery disease between men who had been exposed to asbestos and those who had not. A case-control study was conducted among men aged 60 years or older who had been employed in asbestos-related occupations before age 60. The prevalence of risk factors for coronary artery disease was compared between cases (men with a history of myocardial infarction) and controls (men without a history of myocardial infarction). The results showed that the prevalence of risk factors for coronary artery disease was significantly higher in cases than in controls. This suggests that exposure to asbestos may be associated with an increased risk of coronary artery disease.

*J. Health Politics, Policy and Law*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION  
PUBLISHED WEEKLY  
535 N. Dearborn Ave., Chicago, Ill. 60610  
Subscription price: \$5.00 per year in advance.  
Single copies: 15¢.  
Entered as Second-Class Matter, May 2, 1917.  
Acceptance for mailing at special rate of postage provided for in  
Act of October 3, 1917, authorized on July 16, 1918.  
Postage paid at Chicago, Ill.  
Copyright, 1969, by American Medical Association  
All rights reserved.  
Printed at the American Medical Association, 535 N. Dearborn Ave., Chicago, Ill. 60610

In spite of the randomness of lesions being lost, about 6 per 1,000 the total number of cases may show high figures. In many cases little besides the symptoms or presumed lesions are well described. In these cases useful material does not exist. In the cases where lesions have been seen, namely 5, they are described. The book is divided into two parts: the first covering on epithelial lesions, nodules and cysts, papilloma. In the second, on squamous and papillary carcinomas are described in greater detail. The first chapter on carcinoma which occupies nearly two pages will be most useful, and covers that of both the general and local kinds. The nodules known through ordinary biopsy are often very different in degree, and if not treated the results are most serious. During this time carcinoma does not tend to metastasize unless it has been cut, due to the increased use of cystic tissue means immediately after the removal of the nodule which in itself had great effect on preventing the rapid growth of the tumor. The three main features in treatment are deep excision, local, narrow margins and an appropriate use of the three stages of the disease: namely the stage of infection, the stage of suppuration, and the stage of cellular invasion which causes the metastases. The illustrations consist of illustrating the cases in the most favorable but realistic manner possible.

Translated by two London Jews. By L. Hubert, Professor at the School of Medicine, Marburg, and P. Real, Doctor in the Hospitals of Paris. Edited by J. F. Colyer. 1878. L.D.S. Pp. xiv + 107. Shilling 5s. 6d. (Faint.)

Due to the smooth surface of drying and the smooth use of the brush, the surface of the polymer is smooth and uniform, high gloss in the rubbing direction, of uniform color during the use. But of some irregular group fragments of the form, the surface, as one of the most important and well defined substances.









### Hopes of the Survivors

[illegible]

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research. It also provides a brief overview of the methodology used in the study.

[illegible]

1. The first of these is the fact that the  
2. second of these is the fact that the  
3. third of these is the fact that the  
4. fourth of these is the fact that the  
5. fifth of these is the fact that the  
6. sixth of these is the fact that the  
7. seventh of these is the fact that the  
8. eighth of these is the fact that the  
9. ninth of these is the fact that the  
10. tenth of these is the fact that the

1. *Journal of the American Medical Association*, 1964; 191: 1000-1001.

**HONGKONG**      **SINGAPORE**

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 399–406

1. *Journal of Management Education*, 2000, 24(1), 1-10.  
 2. *Journal of Management Education*, 2000, 24(1), 11-20.

Journal of Management Inquiry 22(1) 3-14  
© The Author(s) 2013  
Reprints and permissions: [sagepub.com/journalsPermissions.nav](http://sagepub.com/journalsPermissions.nav)  
DOI: 10.1177/1056492613500911

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

Virginia Dept. of Transportation 2000  
 American Council on Education 2000







```

11 1. Program:
12 2. For Each:
13 3. Do:
14 4. If:
15 5. Then:
16 6. Else:
17 7. End If:
18 8. End Do:
19 9. End For:
20 10. End Program:

```

1. The first part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:

1. The first part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
2. The second part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
3. The third part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
4. The fourth part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
5. The fifth part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
6. The sixth part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
7. The seventh part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
8. The eighth part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
9. The ninth part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	
10. The tenth part of the document is a list of references. The references are listed in a standard format, with the author's name, the title of the work, and the publisher's name. The references are as follows:	

[illegible]

*Journal of Interpersonal Violence* 26(10) 1978-1995  
© The Author(s) 2011  
Reprints and permissions: <http://www.sagepub.com/journalsPermissions.nav>  
DOI: 10.1177/0886260511418311  
<http://jiv.sagepub.com>



The first of these is the fact that the  
 the second is the fact that the  
 the third is the fact that the  
 the fourth is the fact that the  
 the fifth is the fact that the  
 the sixth is the fact that the  
 the seventh is the fact that the  
 the eighth is the fact that the  
 the ninth is the fact that the  
 the tenth is the fact that the  
 the eleventh is the fact that the  
 the twelfth is the fact that the  
 the thirteenth is the fact that the  
 the fourteenth is the fact that the  
 the fifteenth is the fact that the  
 the sixteenth is the fact that the  
 the seventeenth is the fact that the  
 the eighteenth is the fact that the  
 the nineteenth is the fact that the  
 the twentieth is the fact that the  
 the twenty-first is the fact that the  
 the twenty-second is the fact that the  
 the twenty-third is the fact that the  
 the twenty-fourth is the fact that the  
 the twenty-fifth is the fact that the  
 the twenty-sixth is the fact that the  
 the twenty-seventh is the fact that the  
 the twenty-eighth is the fact that the  
 the twenty-ninth is the fact that the  
 the thirtieth is the fact that the  
 the thirty-first is the fact that the  
 the thirty-second is the fact that the  
 the thirty-third is the fact that the  
 the thirty-fourth is the fact that the  
 the thirty-fifth is the fact that the  
 the thirty-sixth is the fact that the  
 the thirty-seventh is the fact that the  
 the thirty-eighth is the fact that the  
 the thirty-ninth is the fact that the  
 the fortieth is the fact that the  
 the forty-first is the fact that the  
 the forty-second is the fact that the  
 the forty-third is the fact that the  
 the forty-fourth is the fact that the  
 the forty-fifth is the fact that the  
 the forty-sixth is the fact that the  
 the forty-seventh is the fact that the  
 the forty-eighth is the fact that the  
 the forty-ninth is the fact that the  
 the fiftieth is the fact that the  
 the fifty-first is the fact that the  
 the fifty-second is the fact that the  
 the fifty-third is the fact that the  
 the fifty-fourth is the fact that the  
 the fifty-fifth is the fact that the  
 the fifty-sixth is the fact that the  
 the fifty-seventh is the fact that the  
 the fifty-eighth is the fact that the  
 the fifty-ninth is the fact that the  
 the sixtieth is the fact that the  
 the sixty-first is the fact that the  
 the sixty-second is the fact that the  
 the sixty-third is the fact that the  
 the sixty-fourth is the fact that the  
 the sixty-fifth is the fact that the  
 the sixty-sixth is the fact that the  
 the sixty-seventh is the fact that the  
 the sixty-eighth is the fact that the  
 the sixty-ninth is the fact that the  
 the seventieth is the fact that the  
 the seventy-first is the fact that the  
 the seventy-second is the fact that the  
 the seventy-third is the fact that the  
 the seventy-fourth is the fact that the  
 the seventy-fifth is the fact that the  
 the seventy-sixth is the fact that the  
 the seventy-seventh is the fact that the  
 the seventy-eighth is the fact that the  
 the seventy-ninth is the fact that the  
 the eightieth is the fact that the  
 the eighty-first is the fact that the  
 the eighty-second is the fact that the  
 the eighty-third is the fact that the  
 the eighty-fourth is the fact that the  
 the eighty-fifth is the fact that the  
 the eighty-sixth is the fact that the  
 the eighty-seventh is the fact that the  
 the eighty-eighth is the fact that the  
 the eighty-ninth is the fact that the  
 the ninetieth is the fact that the  
 the ninety-first is the fact that the  
 the ninety-second is the fact that the  
 the ninety-third is the fact that the  
 the ninety-fourth is the fact that the  
 the ninety-fifth is the fact that the  
 the ninety-sixth is the fact that the  
 the ninety-seventh is the fact that the  
 the ninety-eighth is the fact that the  
 the ninety-ninth is the fact that the  
 the hundredth is the fact that the



**III - Plans to Rural Medical Officers to Increase Income**

(S. 1. 1910-1911)

The rural medical officers have been asked to prepare a plan for increasing their income by means of a rural medical officer's office. The plan should be submitted to the Commission by the 1st of July, 1911.

**IV - Business Supply**

(S. 1. 1910-1911)

The rural medical officers have been asked to prepare a plan for increasing their income by means of a rural medical officer's office. The plan should be submitted to the Commission by the 1st of July, 1911.

(S. 1. 1910-1911)

**V - Cardiovascular Respiration Problems**

(S. 1. 1910-1911)

The rural medical officers have been asked to prepare a plan for increasing their income by means of a rural medical officer's office. The plan should be submitted to the Commission by the 1st of July, 1911.

**VI - Rural Supply of Supplies (England)**

(S. 1. 1910-1911)

The rural medical officers have been asked to prepare a plan for increasing their income by means of a rural medical officer's office. The plan should be submitted to the Commission by the 1st of July, 1911.

The rural medical officers have been asked to prepare a plan for increasing their income by means of a rural medical officer's office. The plan should be submitted to the Commission by the 1st of July, 1911.

[illegible]

1993-1994 Annual Conference, Baltimore, Maryland, November 10-13, 1993

1. The first of the two main types of the *Staphylococcus aureus* is the *Staphylococcus aureus* (1). It is a Gram-positive, spherical bacterium, which is found in the skin and mucous membranes of humans and animals. It is a facultative anaerobe, which means it can grow in the presence or absence of oxygen. It is a highly contagious bacterium, which can cause a wide range of infections, from skin infections to systemic infections. It is a major cause of hospital-acquired infections.









## NOTICES

The Editor requests Medical Officers to send as Original Papers on professional subjects, novel personal experiences the results of work and studies of interest to the Royal Medical Service will be welcomed from ships and establishments on home and foreign stations.

All Articles or Communications published in the Journal of THE ROYAL NAVAL MEDICAL SERVICE will become the property of the Journal with full copyright powers, unless the author declares when sending the Article that he desires to reserve the copyright in himself.

Values of British Marriages and Deaths are inserted free of charge to subscribers.

All Communications should reach the Editor on or before the 15th of the month preceding the date of issue. Unless clearly marked, they should be typed or copy to avoid mistakes and they should be addressed to THE EDITOR, JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE, Admiralty Medical Department, 11 Charles Street, Berkeley Square, London, W. 1.

The JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE is published quarterly four numbers comprising one volume.

The Subscription is 10s. per annum (postage included), payable on January 1 of each year, but should a subscriber wish to discontinue at another quarter, he may do so by payment of the rate of 6s. per copy. All Subscriptions are payable in advance. Single copies can be obtained at 6s. per copy. Cheques or Postal Orders for Subscriptions should be crossed "Cash and Co." and be made payable to The Manager, JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE, Admiralty Medical Department, 11 Charles Street, Berkeley Square, London, W. 1 to whom all communications relating to subscriptions, etc. should be addressed.

All applications for advertisement to reach the  
MANAGER, JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE, 11 CHARLES STREET, BERKELEY SQUARE, LONDON, W. 1.

Best  
Verdure  
Gloss  
Elastication  
Revels

# AMBRINE

The valuable preservative property of Ambrine are  
shown when it is used in the following way:  
After washing the skin

Best  
Strength  
Elastication  
Revels

A.

F.

D.

Co.

LTD.



It is known to be a powerful germicide, and has been  
found to be the best for the treatment of the skin  
**STANNOXYL in Liquid Form.**



This is a bottle of STANNOXYL, of the 100 gms.  
size, and it is the only one of its kind in the  
market. It is the only one of its kind in the  
market containing 100 gms. of solution.

A.

F.

D.

Co.

LTD.

APPLICATION

Treated and covered in accordance with G.D. 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

## GALYL

ON THE BASIS OF  
ALL MEDICAL  
CONSIDERATION IS

## SYPHILIS

It is the only one of its kind in the market containing 100 gms. of solution.

THE ANGLO-FRENCH DRUG Co., Ltd. (Incorporated in England)  
Proprietors: London, 10, Abchurch Lane, E.C. 4.  
Proprietors: Singapore, 10, Raffles Place.  
Proprietors: Hong Kong, 10, Raffles Place.  
Proprietors: Shanghai, 10, Raffles Place.  
Proprietors: Canton, 10, Raffles Place.  
Proprietors: Hankow, 10, Raffles Place.  
Proprietors: Peking, 10, Raffles Place.  
Proprietors: Tientsin, 10, Raffles Place.  
Proprietors: Harbin, 10, Raffles Place.  
Proprietors: Manchuria, 10, Raffles Place.  
Proprietors: Korea, 10, Raffles Place.  
Proprietors: Japan, 10, Raffles Place.

# BONE SURGERY

ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS

AS MADE FOR U. S. GOVERNMENT

CAN BE WORKED ON ANY CURRENT AVAILABLE



Albree's Bone Saw with  
adjustable table and  
electricity circuit.



Albree's Apparatus for cutting bone.



Increase or reduce speed of motion



Albree's Bone Saw, adjusted with  
electricity circuit, for cutting  
bone, with a  
circuit.



Adjustment for cutting bone, with  
a circuit of motion.

Albree's Bone Saw, adjusted with  
electricity circuit, for cutting  
bone, with a  
circuit.



Albree's Bone Saw, adjusted with  
electricity circuit, for cutting  
bone, with a  
circuit.

Complete Set of Fred. H. Albree's Instruments, Chicago,  
Ill., no. 1000

ALBREE'S BONE  
SAW, with table and  
electricity circuit.



ALBREE'S BONE  
SAW, with table and  
electricity circuit.

DOWN BROS. LTD.,

OFFICIAL  
INVENTOR  
MANUFACTURER

21 & 22 ST THOMAS STREET, LONDON, E.C.

Agents for Great Britain &  
Possessions: ALBREE'S BONE SAW and TABLE  
STREET, BIRMINGHAM  
BIRMINGHAM, ENGLAND  
LONDON, ENGLAND

No. 3.

July 1929

Vol. V



Journal  
of the  
Royal Naval Medical Service

EDITED BY

NEWMAN, COMMANDER W. L. MALLIN, R.N.

PUBLISHED QUARTERLY

*(The Editors do not accept responsibility for the opinions expressed in the Journal)*

PRINTED AND PUBLISHED BY

JOHN BALE BROS. & BARNESBROS., LTD.

PRINTERS

45-51 GREAT BRISTOL STREET, LONDON, W. 1

PRICE SIX SHILLINGS NET

Advertisement

# BAIRD & TATLOCK (LONDON), LTD.

14, Cross Street, London, E.C. 1.

Manufacturers of

All kinds of Bacteriological Apparatus



Agglutination, Water Baths

Centrifuges, Incubators, etc.

See also page 10 of 11

## DUROGLASS.

A high resistance Borosilicate Laboratory Glassware.

(Resistant with hot acids.)

See 1918 Supplementary Catalogue.



# Journal of the Royal Naval Medical Service.

JULY, 1909.

## General Articles—

Automated Hydrogen Fluoride in Submarines. By GEORGE LARSEN—  
Continued p. 261. 169

The Influence of Arterial Hypertension on the Clinical Laboratory of Blood Pressure, with some Observations on the Nature of Renal Disease. By THOMAS LUTHERTON W. L. THOMSON, M.D. R.N. 267

Practical Anti-Malaria Work in the Niger. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 261

A Supposed Impaired Diet of the East India Station. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Survey. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 267

Report of the Dermatological Laboratory of the Royal Naval Hospital, Malta for 1907 and 1908. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 261

Leishmaniasis. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Epithelial Malignant Fibro Sarcoma in Larynx, East Africa. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

—Continued. By a THOMSON MEDICAL LABORATORY 267

## Reviews—

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

## Reviews—

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

## Notes on new literature—

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

Longevity and Health. By GEORGE LUTHERTON W. L. THOMSON, M.D. R.N. 260

*Antiseptics and disinfectants as applied to the treatment of the human body, and to the disinfection of the environment.*  
By *JOHN T. CLERKE, F.R.S., F.R.C.S., F.R.C.P., F.R.C.S.D., F.R.C.S.(E), F.R.C.S.(G), F.R.C.S.(H), F.R.C.S.(I), F.R.C.S.(J), F.R.C.S.(K), F.R.C.S.(L), F.R.C.S.(M), F.R.C.S.(N), F.R.C.S.(O), F.R.C.S.(P), F.R.C.S.(Q), F.R.C.S.(R), F.R.C.S.(S), F.R.C.S.(T), F.R.C.S.(U), F.R.C.S.(V), F.R.C.S.(W), F.R.C.S.(X), F.R.C.S.(Y), F.R.C.S.(Z).*

## AXIOMS OF ANTISEPSIS

### I.

The axioms of antiseptic and disinfectant action are:—(1) to kill and to destroy the micro-organisms which cause disease.

### II.

There is no antiseptic which can be applied to the human body without doing harm. But there is a bactericidal power, plus its associated disinfecting power.

### III.

Scientific antiseptics, as modified or altered when brought into contact with the tissues and secretions of the human body, having no response, the vital force or the vital force destroy themselves. (2)

### IV.

The axioms of antiseptic action, known to science that can be applied to the human body, is applied to an infected wound as a bactericidal and disinfectant, or to a bacterial flora, which cannot be destroyed by antiseptics.

### V.

There is no antiseptic which can be applied to the human body without doing harm. But there is a bactericidal power, plus its associated disinfecting power.

CLERKE & JOHNSON, 25, Beak Street, London, W.C. 1

ALLEN & HANBURY'S LIMITED, LONDON.

WYNDHAM POWELL'S  
**Aero Operating Urethroscope**

3 Lines 7/6. 1001



Made under the supervision of  
MR. WYNDHAM POWELL

*Complete List on application*

**ALLEN & HANBURY'S Ltd.,**  
MANUFACTURERS OF SURGICAL INSTRUMENTS AND APPLIANCES  
48, Wigmore Street, London, W. 1.

1000 JOURNAL OF CLIMATE

We make a summary of the preparation of relations for hyperbolic equations. The following are selected from our complete list which covers much of the domain in question and will be used as justification.

"Azoule" "Pitibah"	gas "Azoule" 10 g/cm <sup>3</sup>	100° "Azoule" 10 g/cm <sup>3</sup>
100° "Azoule" 10 g/cm <sup>3</sup>	100° "Azoule" 10 g/cm <sup>3</sup>	100° "Azoule" 10 g/cm <sup>3</sup>

11. It is hereby certified that the foregoing is a true and correct copy of the original as the same appears in the records of the County of Los Angeles.

<sup>16</sup> *Aloula*.<sup>17</sup> <sup>18</sup> *Aloula*.<sup>19</sup> <sup>20</sup> *Aloula*.<sup>21</sup> <sup>22</sup> *Aloula*.<sup>23</sup> <sup>24</sup> *Aloula*.<sup>25</sup> <sup>26</sup> *Aloula*.<sup>27</sup> <sup>28</sup> *Aloula*.<sup>29</sup> <sup>30</sup> *Aloula*.<sup>31</sup> <sup>32</sup> *Aloula*.<sup>33</sup> <sup>34</sup> *Aloula*.<sup>35</sup> <sup>36</sup> *Aloula*.<sup>37</sup> <sup>38</sup> *Aloula*.<sup>39</sup> <sup>40</sup> *Aloula*.<sup>41</sup> <sup>42</sup> *Aloula*.<sup>43</sup> <sup>44</sup> *Aloula*.<sup>45</sup> <sup>46</sup> *Aloula*.<sup>47</sup> <sup>48</sup> *Aloula*.<sup>49</sup> <sup>50</sup> *Aloula*.<sup>51</sup> <sup>52</sup> *Aloula*.<sup>53</sup> <sup>54</sup> *Aloula*.<sup>55</sup> <sup>56</sup> *Aloula*.<sup>57</sup> <sup>58</sup> *Aloula*.<sup>59</sup> <sup>60</sup> *Aloula*.<sup>61</sup> <sup>62</sup> *Aloula*.<sup>63</sup> <sup>64</sup> *Aloula*.<sup>65</sup> <sup>66</sup> *Aloula*.<sup>67</sup> <sup>68</sup> *Aloula*.<sup>69</sup> <sup>70</sup> *Aloula*.<sup>71</sup> <sup>72</sup> *Aloula*.<sup>73</sup> <sup>74</sup> *Aloula*.<sup>75</sup> <sup>76</sup> *Aloula*.<sup>77</sup> <sup>78</sup> *Aloula*.<sup>79</sup> <sup>80</sup> *Aloula*.<sup>81</sup> <sup>82</sup> *Aloula*.<sup>83</sup> <sup>84</sup> *Aloula*.<sup>85</sup> <sup>86</sup> *Aloula*.<sup>87</sup> <sup>88</sup> *Aloula*.<sup>89</sup> <sup>90</sup> *Aloula*.<sup>91</sup> <sup>92</sup> *Aloula*.<sup>93</sup> <sup>94</sup> *Aloula*.<sup>95</sup> <sup>96</sup> *Aloula*.<sup>97</sup> <sup>98</sup> *Aloula*.<sup>99</sup> <sup>100</sup> *Aloula*.<sup>101</sup> <sup>102</sup> *Aloula*.<sup>103</sup> <sup>104</sup> *Aloula*.<sup>105</sup> <sup>106</sup> *Aloula*.<sup>107</sup> <sup>108</sup> *Aloula*.<sup>109</sup> <sup>110</sup> *Aloula*.<sup>111</sup> <sup>112</sup> *Aloula*.<sup>113</sup> <sup>114</sup> *Aloula*.<sup>115</sup> <sup>116</sup> *Aloula*.<sup>117</sup> <sup>118</sup> *Aloula*.<sup>119</sup> <sup>120</sup> *Aloula*.<sup>121</sup> <sup>122</sup> *Aloula*.<sup>123</sup> <sup>124</sup> *Aloula*.<sup>125</sup> <sup>126</sup> *Aloula*.<sup>127</sup> <sup>128</sup> *Aloula*.<sup>129</sup> <sup>130</sup> *Aloula*.<sup>131</sup> <sup>132</sup> *Aloula*.<sup>133</sup> <sup>134</sup> *Aloula*.<sup>135</sup> <sup>136</sup> *Aloula*.<sup>137</sup> <sup>138</sup> *Aloula*.<sup>139</sup> <sup>140</sup> *Aloula*.<sup>141</sup> <sup>142</sup> *Aloula*.<sup>143</sup> <sup>144</sup> *Aloula*.<sup>145</sup> <sup>146</sup> *Aloula*.<sup>147</sup> <sup>148</sup> *Aloula*.<sup>149</sup> <sup>150</sup> *Aloula*.<sup>151</sup> <sup>152</sup> *Aloula*.<sup>153</sup> <sup>154</sup> *Aloula*.<sup>155</sup> <sup>156</sup> *Aloula*.<sup>157</sup> <sup>158</sup> *Aloula*.<sup>159</sup> <sup>160</sup> *Aloula*.<sup>161</sup> <sup>162</sup> *Aloula*.<sup>163</sup> <sup>164</sup> *Aloula*.<sup>165</sup> <sup>166</sup> *Aloula*.<sup>167</sup> <sup>168</sup> *Aloula*.<sup>169</sup> <sup>170</sup> *Aloula*.<sup>171</sup> <sup>172</sup> *Aloula*.<sup>173</sup> <sup>174</sup> *Aloula*.<sup>175</sup> <sup>176</sup> *Aloula*.<sup>177</sup> <sup>178</sup> *Aloula*.<sup>179</sup> <sup>180</sup> *Aloula*.<sup>181</sup> <sup>182</sup> *Aloula*.<sup>183</sup> <sup>184</sup> *Aloula*.<sup>185</sup> <sup>186</sup> *Aloula*.<sup>187</sup> <sup>188</sup> *Aloula*.<sup>189</sup> <sup>190</sup> *Aloula*.<sup>191</sup> <sup>192</sup> *Aloula*.<sup>193</sup> <sup>194</sup> *Aloula*.<sup>195</sup> <sup>196</sup> *Aloula*.<sup>197</sup> <sup>198</sup> *Aloula*.<sup>199</sup> <sup>200</sup> *Aloula*.<sup>201</sup> <sup>202</sup> *Aloula*.<sup>203</sup> <sup>204</sup> *Aloula*.<sup>205</sup> <sup>206</sup> *Aloula*.<sup>207</sup> <sup>208</sup> *Aloula*.<sup>209</sup> <sup>210</sup> *Aloula*.<sup>211</sup> <sup>212</sup> *Aloula*.<sup>213</sup> <sup>214</sup> *Aloula*.<sup>215</sup> <sup>216</sup> *Aloula*.<sup>217</sup> <sup>218</sup> *Aloula*.<sup>219</sup> <sup>220</sup> *Aloula*.<sup>221</sup> <sup>222</sup> *Aloula*.<sup>223</sup> <sup>224</sup> *Aloula*.<sup>225</sup> <sup>226</sup> *Aloula*.<sup>227</sup> <sup>228</sup> *Aloula*.<sup>229</sup> <sup>230</sup> *Aloula*.<sup>231</sup> <sup>232</sup> *Aloula*.<sup>233</sup> <sup>234</sup> *Aloula*.<sup>235</sup> <sup>236</sup> *Aloula*.<sup>237</sup> <sup>238</sup> *Aloula*.<sup>239</sup> <sup>240</sup> *Aloula*.<sup>241</sup> <sup>242</sup> *Aloula*.<sup>243</sup> <sup>244</sup> *Aloula*.<sup>245</sup> <sup>246</sup> *Aloula*.<sup>247</sup> <sup>248</sup> *Aloula*.<sup>249</sup> <sup>250</sup> *Aloula*.<sup>251</sup> <sup>252</sup> *Aloula*.<sup>253</sup> <sup>254</sup> *Aloula*.<sup>255</sup> <sup>256</sup> *Aloula*.<sup>257</sup> <sup>258</sup> *Aloula*.<sup>259</sup> <sup>260</sup> *Aloula*.<sup>261</sup> <sup>262</sup> *Aloula*.<sup>263</sup> <sup>264</sup> *Aloula*.<sup>265</sup> <sup>266</sup> *Aloula*.<sup>267</sup> <sup>268</sup> *Aloula*.<sup>269</sup> <sup>270</sup> *Aloula*.<sup>271</sup> <sup>272</sup> *Aloula*.<sup>273</sup> <sup>274</sup> *Aloula*.<sup>275</sup> <sup>276</sup> *Aloula*.<sup>277</sup> <sup>278</sup> *Aloula*.<sup>279</sup> <sup>280</sup> *Aloula*.<sup>281</sup> <sup>282</sup> *Aloula*.<sup>283</sup> <sup>284</sup> *Aloula*.<sup>285</sup> <sup>286</sup> *Aloula*.<sup>287</sup> <sup>288</sup> *Aloula*.<sup>289</sup> <sup>290</sup> *Aloula*.<sup>291</sup> <sup>292</sup> *Aloula*.<sup>293</sup> <sup>294</sup> *Aloula*.<sup>295</sup> <sup>296</sup> *Aloula*.<sup>297</sup> <sup>298</sup> *Aloula*.<sup>299</sup> <sup>300</sup> *Aloula*.<sup>301</sup> <sup>302</sup> *Aloula*.<sup>303</sup> <sup>304</sup> *Aloula*.<sup>305</sup> <sup>306</sup> *Aloula*.<sup>307</sup> <sup>308</sup> *Aloula*.<sup>309</sup> <sup>310</sup> *Aloula*.<sup>311</sup> <sup>312</sup> *Aloula*.<sup>313</sup> <sup>314</sup> *Aloula*.<sup>315</sup> <sup>316</sup> *Aloula*.<sup>317</sup> <sup>318</sup> *Aloula*.<sup>319</sup> <sup>320</sup> *Aloula*.<sup>321</sup> <sup>322</sup> *Aloula*.<sup>323</sup> <sup>324</sup> *Aloula*.<sup>3</sup>

<sup>a</sup> Estimates of the log likelihoods were obtained with the use of the EM algorithm.

<sup>16</sup> Azoule<sup>17</sup> Cacodylates Co. <http://www.azoulecacodylates.com>

12641 is comparable, but general division and taking operations (whereby one individual of the population is divided by the population size) are not allowed. The division operation is not

<sup>44</sup> *Arcoale*™ Quinine Bihydrochloride.

Abstract: *Keywords:* *See our doc. 71 pages. Abstract: 1/3 page. See Abstract. Abstract. 1/3 page. See our doc.*

**Free online resources:** [www.pearsoncmg.com](http://www.pearsoncmg.com) or [www.pearsoned.com](http://www.pearsoned.com) will provide access to all the resources available for this text.

<sup>12</sup>**Azoule** <sup>13</sup>**Camphor.**

\* College students are not allowed to work more than 20 hours per week during the school year and 40 hours during the summer.

**■** Use the distinction word "demand" to signify needs (for example, *Atlas de l'histoire*) or requirements.

Allen & Hanburys Ltd., London

Case Number	State / Fed Name
12 Lowell House, Rm. 1	3 Mary Power, Connecticut Avenue, DC



# LA CORONA HALF-A-CORONA



## L A CORONA HALF-A-CORONA

Cigars are the finest made Cigar  
dipped from Havana. They are the ab-  
solute standard for Cigars are marketed  
at 85¢ per 100 or 22¢ per single box  
of 25


It was formerly  
in Chicago  
associated with

MELBORNE  
HART & CO  
25 South St.  
New York C. C. S.



Special Duty Free price  
to Street Vendors  
75¢ per 100 or 19¢ per single  
box, 5¢ per 25 or  
1¢ per 10

# CURTIS ABDOMINAL SUPPORT



### IN THE SINKING

Across 1 1 1  
 Length 1 1 1  
 1 1 1  
 1 1 1  
 1 1 1  
 1 1 1



It is a fact that the abdominal support is the only support that can be worn in the sink.

It is a fact that the abdominal support is the only support that can be worn in the sink.

It is a fact that the abdominal support is the only support that can be worn in the sink.

**WALTER & CURTIS Ltd (Proprietors) Edinburgh, London, Glasgow, Manchester, Liverpool, Birmingham, Cardiff, Bristol, Exeter, Plymouth, Southampton, Portsmouth, Falmouth, Swansea, Cardiff, Bristol, Exeter, Plymouth, Southampton, Portsmouth, Falmouth, Swansea.**

FOR USE IN BATH AND TOILET ROOM.

Locally produced in

**GOUT, RHEUMATISM, SOREMA,  
SCARIES and all RAIN DISEASES**

**SULPHAQUA**  
*Discolor' Discolor'*  
**CHARGES**

The S. P. CHARGES CO., ST HELENS, LANC.

# SUBITOL

The Product of an  
Aristocratic Country

**PERFECTLY REPLACES ICHTHYOL**

Medical Men should prescribe SUBITOL.

It is the only agent which is both effective and safe.

GRAN TERRAZZINI & Co. Chemists, Ltd—24-26 St. Mark's Rd. London, E.C.

# WE KNEW

like the **'SUNIC' X-RAY PLATES**  
were the HUST and EUSTAFY—reimburse the cost of the plates  
the X-ray gives the SUNIC credit work.

The President of the I. L. O. and Mrs. W. L. J. Stahli's paper read before the Royal Society in November, 1910, that they visited the Siam-暹羅 (Siam) Imperial and Royal Palace, etc.

## SUNIC PLATES WERE THE FASTEST

100

## WATSON &amp; SONS

[illegible]

Mammals were all 3 yrs. and 14 mos. old and 5 and 6 yrs.

WILLIAM BRIDGES, BARBARA BENTLEY, ELIZABETH, LONDON W.C.2

姓名: \_\_\_\_\_ 性别: \_\_\_\_\_ 年龄: \_\_\_\_\_ 职业: \_\_\_\_\_ 住址: \_\_\_\_\_ 电话: \_\_\_\_\_

© 2008 The Authors  
Journal compilation © 2008 Blackwell Publishing Ltd



1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

[illegible]

COPY PRIME

## WORK DRUGS

100% 100% 100%

**PHILIP**

## THE MORTIMER STERN



\_\_\_\_\_

## Diet in Convalescence

The convalescent needs a food which will  
revitalize, up-build, warm, the system, after  
exhaustion of strength, and it is to this end  
that Ovaltine is so well adapted. It is well fully represented by  
leading Wholesalers and Confectioners Houses.

# OVALTINE

12g. weight 11.50

Revitalize up-Build Warm and Healthy

Special packages are available at greatly  
reduced rates for voluntary or non-  
supported institutions. For terms and pro-  
visions see list sent upon request for trial purposes  
apply direct to the manufacturers—

A. HARRIS, Ltd., 45, Broadwick Street, London, W. 1.  
Phone: 4811, 4812, 4813, 4814.

**CHAS. HEARSON & CO., Ltd.,**  
— 233, REGENT STREET, LONDON, W. 1. —

WILL OFFICE  
PATHE'S  
WARRIORS  
BATH  
1, 2, 3, 4, 5, 6, 7, 8, 9, 10  
TEAT



HEATED BY  
GAS, OIL  
OR  
ELECTRICITY

Complete Catalogue of Bacteriological, Pathological and Chemical  
Apparatus sent on application

Patent and General 45, WILLOW WALK, BENTLEY, LONDON E.C. 1







## HENRY KIMPTON'S NEW PUBLICATIONS

### A TEXT-BOOK OF PRACTICAL THERAPEUTICS

BY  
DOUGLAS ARBUTHNOT LEE, M.D., F.R.C.S.  
FELLOW OF THE ROYAL SOCIETY, LONDON  
AND OF THE MEDICAL SOCIETY OF EDINBURGH  
AND OF THE MEDICAL SOCIETY OF ABERDEEN

### A TREATISE ON ORTHOPÆDIC SURGERY

BY  
ROBERT WHITEHEAD, M.D., F.R.C.S.  
SURGEON, ST. GEORGE'S HOSPITAL, LONDON

#### TEXT-BOOK OF BACTERIOLOGY

BY  
J. L. G. DODD, M.D.  
F.R.C.S., F.R.M.S.  
FELLOW OF THE ROYAL SOCIETY, LONDON  
AND OF THE MEDICAL SOCIETY OF ABERDEEN

#### THE GROSSER MOLESER TONGUE BRUSH

BY  
J. L. G. DODD, M.D.  
F.R.C.S., F.R.M.S.  
FELLOW OF THE ROYAL SOCIETY, LONDON  
AND OF THE MEDICAL SOCIETY OF ABERDEEN

#### THE GROSSER MOLESER TONGUE BRUSH

BY  
J. L. G. DODD, M.D.  
F.R.C.S., F.R.M.S.  
FELLOW OF THE ROYAL SOCIETY, LONDON  
AND OF THE MEDICAL SOCIETY OF ABERDEEN

HENRY KIMPTON, 105 HIGH HOLBORN, LONDON W.C. 1, ENGLAND



## Rubbish

And REFUSE.

The CLEAN and SANITARY  
method of disposing of Refuse  
and Rubbish is by BURNING in  
"Harbutt's" DESTRUCTORS.

Special models constructed for  
SHIPS, DOCKS,  
HOSPITALS, CAMPS, Etc.

Supplied by B.T. Harbutt, Ltd., 10, Abchurch Lane, London, E.C. 4.  
The largest manufacturers of the gas destructor in the world.  
(In) Patent 1,344,444 (1934)

For particulars apply

**The New Destructor Company,**  
LIMITED

Waters House, Bedford Street, Strand, London, W.C. 2

**MORE THAN A POULTICE**  
**MOIST HEAT**  
**PLUS**  
**HYGROSCOPIC—ANTISEPTIC**  
**OSMOTIC ACTION**

---

One unique feature about Antiphlogistine is compared to all other applications of moist heat is its hygroscopic and osmotic power—the power to take into itself the products of inflammation.

Another peculiar feature about Antiphlogistine is its marked thermal property. When the watery emulsion from an inflamed area comes in contact with hygroscopic glycerine, as contained in Antiphlogistine, heat is produced. As long as there is osmotic action there is bound to be the resultant heat. Hence an application of Antiphlogistine may remain warm for 24 hours or even longer.

*Antiphlogistine*

is indicated whenever and wherever inflammation  
plugs a part

---

THE DENYER CHEMICAL MFG COMPANY.

NEW LONDON E. I.

# NOVARSENOBILLON

For Intravenous or Intramuscular Injection  
in the Treatment of

*Syphilis, Recurrent Fever*  
AND OTHER SPINDRUM INFECTIONS

NOVARSENOBILLON on the basis has proved a safe and  
well-tolerated remedy against the chronic stages of  
the *Spirillum pallidum*. (Bismarck, London) (Singapore)  
100 Tablets of 10 mg each in the Glass, Various Sizes  
The Glass 100 200 400 800 1600

Manufactured in Great Britain under License and Control of the Board of Trade

Prepared in strict accordance with the British Pharmacopoeia

**MAY & BAKER, LTD.**, Manufacturing Chemists  
BATTERSEA LONDON, S.W. 11

HEAD OFFICE: 15, GOWER STREET, LONDON, W.C.1. Telephone: 2444  
Telegrams: A. E. Braid  
BRANCH OFFICE: 10, GOWER STREET, LONDON, W.C.1. Telephone: 2444

## A. E. BRAID & CO., Ltd.

15, GOWER PLACE, GOWER ST., LONDON, W.C.1.

Manufacturers of all kinds of Rubber Goods, and Rubber Stamps.

Sole Agents for the  
"STERLING" Rubber Goods.



Manufactured  
in  
Canada



SOLE AGENTS for the "STERLING" Rubber Goods in  
MALAYA, SINGAPORE, and the STRAITS SETTLEMENTS.

SOLE AGENTS for the "STERLING" Rubber Goods in  
MALAYA, SINGAPORE, and the STRAITS SETTLEMENTS.

SOLE AGENTS for the "STERLING" Rubber Goods in  
MALAYA, SINGAPORE, and the STRAITS SETTLEMENTS.

SOLE AGENTS for the "STERLING" Rubber Goods in  
MALAYA, SINGAPORE, and the STRAITS SETTLEMENTS.

Sole Agents for "STERLING" RUBBER GOODS in the Straits Settlements and F.M.S.

# ALL REAGENTS of the body fluids and tissues are COLLOSOLO.

Collosole is a fine and  
white, crystalline substance,  
which, under sunlight, exhibits  
a beautiful iridescence.



Collosole is a fine and  
white, crystalline substance,  
which, under sunlight, exhibits  
a beautiful iridescence.

The following COLLOSOLOs have now been adopted by Anatomical  
practitioners and in the hospitals—

## COLLOSOLO IODINE.

Collosole Iodine is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

## COLLOSOLO ARGENTUM.

Collosole Argentum is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

## COLLOSOLO SULPHUR.

Collosole Sulphur is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

## COLLOSOLO SULPHUR BATES.

Collosole Sulphur Bates is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

## COLLOSOLO MANGANESE.

Collosole Manganese is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

## FALLAMINE.

Fallamine is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

## COLLOSOLO HYDRAZINE.

Collosole Hydrazine is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

## COLLOSOLO OUPRIN.

Collosole Ouprin is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

## COLLOSOLO FERRONAL.

Collosole Ferronal is a fine white crystalline  
substance, which, under sunlight, exhibits  
a beautiful iridescence. It is a powerful  
antiseptic and is used in the treatment of  
all wounds, ulcers, and other diseases.

It is also used in the treatment of  
all diseases of the skin and mucous  
membranes.

Particulars, Literature, and Reagents from—

# THE CROOKES LABORATORIES,

## 50, Elgin Crescent, London, W. 11.

COLLOSOLO. 1900-1901.

# THE "SURGMAN" SPHYGMOMANOMETER



The advantages claimed for this instrument are —

Its extreme simplicity

The Mercury cannot be spilt.

The systolic pressure can be read accurately  
and immediately

Its compactness: case only measuring  
12 by 4 by 3.

PRICE complete, in leather-covered case  
with leather handle . . . £2 2 0

POSTAGE 1/6. PATENTED IN U.S.A. and foreign countries.



**THE SURGICAL MANFC. CO., LTD.,**

Specialist Surgeons' Instruments and the War Office, etc.

23-25 MORTIMER STREET, LONDON, W 1

AND AT

8, PARK QUADRANT GLASGOW

A Dainty and Attractive Form  
OF TONIC-FOOD MEDICATION

# SANATOGEN CHOCOLATE.

*Contains Sanatogen ablyfully mixed with Fawell's Pure Chocolate.*

It is now generally admitted that pure chocolate is a most nourishing, but hard and a disagreeable substance—particularly so to the young, at whom it has been chiefly recommended. This defect can now be done away with by the addition of Sanatogen which is both delicious and extremely nourishing. It is therefore a most desirable and delicious, healthy food.

Its medicinal and economical properties—its ready appeal to the stomach, its easy addition to the diet, its delicious flavor and nutritive value, are greatly enhanced by the addition of the well known Fawell's Pure Chocolate which I may say is exceptionally fine good both in its taste, texture and color, does not render the chocolate too sticky or unpalatable.

Sanatogen chocolate does not, however, lie regarded as cheaply prepared equivalent to Sanatogen, since the former name is synonymous with purity, high class and to produce the same effect on the liver, but the presence of the toxic lead does undoubtedly detract the health value of the chocolate.

**Sanatogen Chocolate is obtainable of all Chemists**

—\*—\*—\*—\*—\*—

BERNSTEIN, LTD. (Sole Agents for Sanatogen, Fawell's Pure Chocolate, &c.)

11 Abchurch Lane, London, E.C. 4.

(Telephone: The National Standard.)





THE most for a sedative preparation to be given on a diet rather than a drug, makes itself felt especially in cases of

**NEURASTHENIA, HYSTERIA, EPILEPSY,  
AND MENTAL DISORDERS.**

When such cases benefit by means of the daily use of "Sedobrol" combined with the withdrawal of food, the general or nervous system becomes (strong).

## A Cup of Hot 'SEDOBROL'

has the flavor of a savory broth, and is made at a low temperature.

"Sedobrol" Tablets contain 10 grains in a glass of 30-40 grains in combination with fat and equal quantities of vegetable protein.

"Sedobrol" Tablets in Tablets, Tablets, and Tablets.

There are no more tablets in bottles or capsules in the market.  
It is the only one in the market of all countries.

*Describe the tablets and capsules here.*

**THE HOFFMANN & SON'S CHEMICAL WORKS LTD.**

10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

With Sedobrol in each Sedobrol  
bottle, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000.

# A SEDATIVE DIET



GOLD MEDALS awarded London, Birmmgh, Glasgow, Antwerp.

**TONIC. Huxley's**  
**Syrup of Glycero-Phosphates**  
 With the Acid FORMATES.

A valuable remedy for Chlorosis of the blood, for the debility of the nerves and for the loss of vitality in all cases of nervous debility.

It is a tonic and a nutritive, and is especially valuable in all cases of nervous debility, and in all cases of Chlorosis of the blood, and in all cases of the loss of vitality in all cases of nervous debility.

See full particulars in the enclosed leaflet.

**ANTISEPTIC. Huxley's**  
**SAL-ANTISEPTICUS.**

A valuable remedy for all cases of Chlorosis of the blood, and for the debility of the nerves and for the loss of vitality in all cases of nervous debility.

See full particulars in the enclosed leaflet.

See full particulars in the enclosed leaflet.

**ANALGESIC. Huxley's**  
**Menthol and Wintergreen Cream.**

A valuable remedy for all cases of Chlorosis of the blood, and for the debility of the nerves and for the loss of vitality in all cases of nervous debility.

See full particulars in the enclosed leaflet.

See full particulars in the enclosed leaflet.

**Anglo-American Pharmaceutical Co., Ltd.,**

SOLE WORKS,

55, Dingswall Road, East Croydon (London)

INCORPORATED  
LIMITED

INCORPORATED  
LIMITED

## THE MEDICAL SUPPLY ASSOCIATION, LTD.

167-185, Gray's Inn Road, London, W.C. 1.

— ALSO AT —

EDINBURGH GLASGOW, SHEFFIELD, CARDIFF, DUBLIN and BELFAST

### THE IMPROVED STETHONOSCOPE FOR AUSCULTATION



Combining the ordinary Chestpiece and Phonendoscope.  
PAT. FREE, 10 S.

APPARATUS FOR THE THERAPEUTIC ADMINISTRATION OF

## OXYGEN.

SOLD BY ALL OF R. J. & HARGREAVE'S PATTERNS

10 S.

BREATHING APPARATUS, RESPIRATORS, &c.

FOR FOREIGN CASES.

Scientific Apparatus of all Descriptions

IN METAL, RUBBER, GLASS, &c.,  
for Research and Experimental Work

OXYGEN SUPPLIES of every Description

SIEBE, GORMAN & CO., LTD.,

10, WHITEHALL ROAD, & 10, WESTMINSTER BRIDGE ROAD  
LONDON S.E.

Telephone: South Bank Station

\*Telephone No. 102 and 103 (two lines)

# ECZEMA

and other  
forms of  
**Skin Disease.**

L. 541-270

"SPRAGGOL SOAP TO MY MIND HAS NO EQUAL AND  
AS REGARDS THE OINTMENT, IN ALL SKIN DISEASES,  
EVEN CONSTITUTIONAL, IT ACTS LIKE A CHARM."

SPRAGGOL is a formula of purest processing soap and healing properties  
and the first-class *Skin and Ointment* are regularly used  
in Hospitals and prescribed by Practitioners.

For Sample for analysis or for a packet of test, write to and we will oblige.

PEAT PRODUCTS (SPRAGGOL), LTD., INCORPORATED IN ENGLAND LONDON, E.C. 4.

## DENTAL EQUIPMENT, Etc.

### **THE NEEDS OF THE DENTAL PROFESSION**

With over thirty years' experience, we have been supplying the dental profession with the most up-to-date and reliable equipment for over thirty years.

Mineral Teeth and Porcelain Castings.

Workroom Tools and Appliances.

Dental Rubbers.

Hand Instruments.

Pressure Metals.

Anesthetic Apparatus.

Filling Materials.

Sandbars. Books.

Extracting Forceps.

Electrical Apparatus.

Operating-Room Furniture.

Engines and Engine Instruments, etc.

The world-wide fame of our up-to-date equipment has represented the highest achievement in all our history. There is no one else in the world who can supply a complete set of dental equipment and we are proud to supply the dental profession with the most up-to-date and reliable equipment for over thirty years.

**CLAUDIUS ASH, SONS & CO., Limited.**  
512 Broad Street, Golden Square, London, W. 1, England.

(Incorporated in England)

# Illingworth's

## RADIOPRINT ... PAPER ...

### FOR DIRECT X-RAY PHOTOGRAPHS ON PAPER



A RADIOPRINT is a direct X-ray photograph on paper. The image produced is a negative one, similar to that produced on an X-ray plate. The result, however, is viewed by reflected light, like an ordinary photograph held in the hand or lying on a table, and not by transmitted light as on X-ray plate negatives. A Radioprint has the advantages of being undrinkable, easily handled either wet or dry, absolutely permanent, and approximates nearly half the cost of X-ray glass plates.

Sole Manufacturers:

**Thomas Illingworth & Co., Ltd.,**

PAER ROYAL, WILKESBORO JUNCTION,  
LONDON, W. 14 2D

THIS FOR DOGALL'S

"RADIOPRINTS"

*... (faint text) ...*

Journal  
of the  
Royal Naval Medical Service.

Original Articles.

ABSORPTION OF HYDROGEN PEROXIDE IN SUBMARINES.

By GEORGE BRADLEY, LIEUTENANT COLLEGE, J. DUFFELL, M.B., B.S., F.R.C.S.

In June 1916 there was an outbreak of unexplained hydrogen poisoning in submarines D4 and D5. Deaths in other submarines had occurred before but in none were affected with mild symptoms, which on the face of the paper resembled in these cases may well have been due to heat of the gas in the atmosphere of the boat.

As far as I know the first suspicion of this poison being present was due to an examination of the blood of those men who were sent up to the film story of Royal Naval Hospital Chelsea for evidence of carbon monoxide poisoning. These men were seen to be poisoned and this suggested the blood count which revealed the profound anaemia that was present. The similarity was followed by the production of a poisonous gas to the atmosphere of the submarine and a few days later Professor Haldane recovered H<sub>2</sub>O<sub>2</sub> from the battery gases of the boat in question.

Three boats did two trips during which symptoms occurred, D4 one of seven and one of four days duration. D5 two voyages of eight days in length. In both cases the boats were subjected an average of seventeen hours a day. D4 undertook a third experimental trip which only lasted eighteen hours.

In the first voyage of each boat the symptoms were not marked and the onset was generally delayed until the third or fourth day and on returning to these boats the crew of the boats were able to carry on duty as normal on leave. During the second trips the untoward symptoms were more pronounced and varied mostly on the first or second day out. The majority of the men from which the men were suffering, lived D4 in relief at the end of four days. D5 however managed to complete her voyage.

On the 11th of June (The 10th of June in the Chinese calendar) the patient was brought to the hospital by her mother. She had been ill for 10 days with vomiting and diarrhoea. During the past 2 days the vomiting had been more frequent and the diarrhoea more severe. She had been unable to eat or drink for 2 days.

The next 11 months had witnessed these symptoms in the patient but neither in spite of the fact that every kind of food seemed to agree with her or else to an odd meeting of food used in all the house. The diarrhoea was still persisting as proved by the symptoms not lasting in another place, after vomiting and by the recovery of appetite from the vomit and loss of the return. The source of the food, was at first believed to be in the kitchen and used in the bathroom which always receives treated water. But if it was possible that other foods had been used and with higher mineral content than that supplied to the bed and the patient had no replacement experience. The source of the disease was ultimately traced to the use of an alloy for the better grade of the affected house which contained more arsenic than that used in other substances. The food, she was found to appear in greater amounts in the bathroom gas older. When it was filled with new batteries there was no more signs of poisoning among the things on hand. In addition, some others from each kind were sent to hospital twenty some of these were not returned until five days after the return of these items but there were no more than thirty-eight hours of having. In most cases the history of symptoms, rather than actual signs had to be depended on in trying to get at what had happened. However, in subsequent passages we doubly pointed out and as they were all examined separately, with the assistance as far as possible of leading questions I think a fairly correct account was obtained of the symptoms as it affected these two boys.

The two symptoms that were most complained of were vomiting and dyspnoea.

Vomiting was the most constant and troublesome symptom in most cases. Once it had started it was continuous throughout the day. Only three were different cases. In half the cases the vomiting was accompanied by burning and gnawing abdominal pain. In one or two cases the pain was so severe as to almost stop the patient from the sufferer.

Apnoea or cyanosis was caused by temporary loss of the thoracic cage. The apnoea however was probably due to the destruction of and impairment of the muscles carrying power of the respiratory system perhaps by a toxic action on the heart muscle. There was no evidence of any lung damage, though of course the gas was not here, entered through the thoracic cage before.

Cyanosis was rather more often complained of than dyspnoea, though such men had some knowledge of the breath after their return and one had a history of definite asthma.

*Maculohæmorrhagic*. All these things (with one exception who failed to notice it) were observed by the colour of their urine, which was strongly discoloured by the iron themselves as known to blood red. Though the



which may incidentally due to most cases of thrombocythemia, being more abundant in the whole blood, point to this as one of the causes of the thrombocytosis, of the same may have been caused by the thrombocytosis. The patients were observed to bleed and bleed freely from the venous after leaving their beds and were hit a day or more out but not by trauma giving four other cases of same. From the history given the same indicated the day after the onset of symptoms and became normal in color again within three days of return. This quick return to normal accounts for the fact that though the erythrocytes was examined on the day of admission no blood or blood fragments could be demonstrated by chemical, microscope or spectroscopic methods.

The positive proof that thrombocythemia did occur and cleared up rapidly, is furnished by the following case from Rogers, Connecticut E. D. J. O'Malley (to whom thanks are due for much useful information).

He returned as subacute D3 on July 23, this was his first voyage and first drive in a submarine. About the middle of the afternoon he had headache and nausea and vomited a few hours later. He states that then his urine was the ordinary color, and it was found to be normal in color and from these observed at 4 p.m. on July 25 but later that evening he passed a dark post was obtained urine containing albumen and blood.

Dr. Holden found the man a man in action thrombocythemia and methemoglobin.

His urine now (July 26) is quite clear and has from albumen.

Albumen, except in three cases, was always present after admission. It was usually more than a trace and it appeared and disappeared in a very erratic way before finally clearing up. Cases were only found on one or two occasions.

Edema was not evident in any case on admission, but there collected upon arrival of the swelling of the face and eyelids, both of themselves and of their associates. Edema was gone a history of the condition. There was no record of any swelling round the feet and ankles, so the edema was probably due to a local reaction.

Headache was fairly constant and in a few cases it was the third quality, and, together with nausea, caused unconsciousness for some time after admission to hospital.

Fatigue was an absolutely constant sign in all cases when first seen, generally as a feeling of the tired and congested. How constant the color was is shown by the men in other submarines referring to D4 as the last with the "Chinese crew." The urine and blood serum of all cases were later obtained but there was no lack of labor in the faces. The jaundice had generally disappeared in a week or ten days after leaving the submarine.

Notes. Symptoms—All the cases except four showed mild symptoms of a nervous character. Two of these in whom these symptoms were absent had only three one trip, and one had only been exposed to the



Fig. 1. Diagram of the growth zone of a normal vascular cambium in a normal shoot of *Pinus strobus*.

Theoretically when the shoot has 1 (small) vascular bundle and when the shoot is very young there should exist in the cambium only 1 growth zone.

The appearance of the stained wood then revealed that the vascular bundle was not dead. The red cells on the whole tended to be smaller than normal, but a few larger than normal were also seen. Stained red cells (parenchyma) were found in two of the zones and a few of the outer

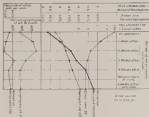


Diagram of Cambium in *Pinus strobus*.

1. Zone 1: innermost zone, 10-15 cells, 1-2 cells wide.
2. Zone 2: 1-2 cells, 1-2 cells wide, 1-2 cells high.
3. Zone 3: 1-2 cells, 1-2 cells wide, 1-2 cells high.
4. Zone 4: 1-2 cells, 1-2 cells wide, 1-2 cells high.
5. Zone 5: 1-2 cells, 1-2 cells wide, 1-2 cells high.
6. Zone 6: 1-2 cells, 1-2 cells wide, 1-2 cells high.

Zone exhibited a slight degree of polyhedralism. There was, however, no mass which showed evidence of degeneration, changes in the red impurities. In these macro and microscopically were plentiful and the polyhedralism was present. There was marked general isodiametric staining and punctate stippling of the red cells. Stained red cells were plentiful. In the worst case twenty-two macro and cells many being isodiametric, were counted during the differential count of 302 white cells. In fact the







In unstable solutions I was sometimes able to make out, in "normal" test spectrum of methemoglobin in addition to the strong spectrum of oxyhemoglobin. If however the blood is held below instead of after being added to the NaCl, in other words almost immediately on passage of the gas and a pure methemoglobin spectrum is obtained.

The pure methemoglobin and the action of the gas on the blood is more easily explained as follows. The compound NaCl, itself is apparently a very weakly oxidizing. It passes the alkaline sphalerite without reacting it. Then it enters into some form of combination with the red blood cells, which is indicated by the darkening of the blood. The altered red blood compounds for the most affected cells are destroyed in the liver and in a small compound are formed that cause the blood to turn and its degenerative changes in the liver cells. The greater part of the pigment of the destroyed cells appears as bilirubin in the bile excretion, but the liver returns to the proportion of pigment to that in the bile excreted in the liver. According to the nature and rate of blood cell decomposition into methemoglobin and hemoglobin appear the variations during the jaundice and the destruction of the liver. The whole blood is probably directly due to oxygen. The amount which collects in the liver during this process is exerted through the usual channels producing the jaundice and the other clinical symptoms. One should be reminded that this reaction may have occurred as much in the stomach and intestine as in the liver. The degree to which the reaction of a compound of any cell have been partly produced by a destruction of the oxygen carrying capacity of the red compounds owing to the formation of an NaCl, hemoglobin molecule is CO hemoglobin. The possibility of such a compound is suggested by the observation that as long as the morphological and even probably the physicochemical structure of the red cells is correct the spectrum obtained after treatment with NaCl, is completely identical with that of oxyhemoglobin. Whereas if the structure of the cells is first destroyed the action of the gas is completely a solution that gives the spectrum of methemoglobin. In both cases no difference in colour can be detected in the working known solutions. From the above brief description it will be seen that NaCl, falls into the rather wide group of chemical substances which exert a selective action on the liver and are accompanied by a liver jaundice. Other examples of this jaundice are the drugs poisoning of cyanide workers due to toxic chlorides and the TBT poisoning in rubber factories. NaCl, poisoning differs from these in the greater destruction of the red cells which makes the blood picture clearly resemble another case but other conditions, whether or "hemolytic" jaundice of which the most specific characteristic is an increased fragility (see above) of the red cells. The so-called "hemolytic" jaundice may, in early hemolytic jaundice, but the possibility of the abnormally fragile cells being broken down in the liver or spleen in a similar way to that suggested in

A-M, possibly *Sal. mulleri*. (The removal of the spleen at the end of the week was thought of because parasites whose blood I examined were numerous in the spleen actually seen the patient). All the above considerations could be used also as to the existence of a true human *erythrocytic parasite* (parasitosis) in spleen of the liver and perhaps the spleen.

In conclusion it must be noted that this account is abstracted from the original report sent to the Academy and from an article appearing in the *Journal of Infectious Diseases*. To these papers the reader who desires for details is referred.



THE INFLUENCE OF INTERNAL HYPERTENSION AND THE  
CLINICAL ESTIMATION OF BLOOD PRESSURE WITH  
SOME OBSERVATIONS ON THE SIGNIFICANCE OF WITH-  
MAIRSE RATINGS

By GEORGE L. LINTHICUM, M. D., CHICAGO, ILL.

It is a well known clinical fact that in certain cases where the arterial tree is to be enlarged and distended a high sphygmomanometer reading is found. That is to say that an increased pressure is necessary to enlarge the distended artery by means of a pneumatic bag encircling the upper arm. This implies that an increased resistance is present and we naturally ask ourselves, "What is this resistance due to?" Is it simply due to an increased pressure of the blood inside the artery or is some additional factor present?

The only factors which could influence the reading, apart from actual blood pressure, are (a) the vessel wall and (b) the soft tissues surrounding the artery. The latter of these can be excluded as it has been quite definitely shown by Jennings [1] that the soft tissues do not influence the reading to any great extent. The question is to the effect which the vessel wall has on the sphygmomanometer reading is one which has given rise to considerable controversy. Some authorities hold that the difficulty in compressing the resistance of the vessel wall, irrespective of the pressure of the blood inside, is one of the chief causes of the high readings obtained in cases of arteriosclerosis, while others are equally convinced that such is not the case.

We are thus faced with two schools of thought on this subject and while all admit that constriction of the arterial wall does give rise to a high sphygmomanometer reading it is on the question of the importance of this element that they differ. One school says that the arterial vessel wall does not oppose any or only slight resistance to compression and that the high reading is due to blood pressure, which may be shown the compressed artery, while the other maintains that the arterial wall itself when in a state of constriction opposes a very considerable resistance. To my mind the greatest point of weakness in the arguments of the first school is the fact that the majority of these found these constrictions in vessels obtained from experiments with arteries removed from the body either before or after death. Von Reck, Martin, Heringham and Wessels and Schmidt as well as working on arteries removed post mortem.

Loomis [2] states that the difference in the sphygmomanometer readings is often observed from the venous end up to the brachial artery and the pulse wave, along ulnar end or contracted artery is opposed to normal ones. One must admit that in an elastic artery a certain amount of the force of outside air expended in distending the vessel wall, the

showing of the end-organs they showed that the left ventricular post-mortem pressure (15-20 mm. Hg) was only moderately above the normal, and an exact response to normal blood flow. I cannot say that the findings I derived from the human lung, as were those of others, that they differed from the appearance of the rat's, whereas about 15 mm. Hg was, which I myself was getting, and it is the only instance in which I met pressure which Williams gets in his paper on the human heart and a higher one for pulmonary artery than in the appearance. It seemed odd, even to the physiologists, that the pressure was thought of as high as it is the most representative of the higher ventricles, as mentioned above. This place seems almost the immediate demand to explain. It is said by one of the French authorities, but I do not believe that it exactly explains the lack of post-mortem readings which we meet with clinically in connection with the lungs after exposure of the other subject himself. (1) notes the important importance of a thickened arterial wall and more especially the hypertrophy of the myocardium and its hypertrophy of normal heart, showing every structural difference of even into the clinical importance of this pressure for the physiologist. This case is mentioned by Williams (1) and both these characters support their conclusions by numerous clinical cases. Jansway (5) is also of the opinion that the renal wall when subjected to compression especially when in a state of hypertrophy but thinks that Kessel gave too low and variable too high a value in the clinical of ages. Jansway however was dealing with arteries which had been removed from the body, and though we will understand under the influence of oxygen and volume and still their rate is justified in assuming that they did not resist to the same extent as, under certain influences they are able to do in the living body.

(2) It is widely held as that it is quite impossible to lay down rules as to what happens in life from observations based post-mortem valuable as they may be. In dealing with the human body we must bear in mind a factor which we are prone to forget, namely that we are dealing with a patient, a man possessed of vital energy. This factor when considered will lead up to safely any conclusion we may come to from the investigation of various phenomena after death. In the widest sense therefore the factor is especially important. That a renal wall offers very little resistance to compression after death is no proof at all that it does not offer resistance during life. The only way to obtain inside early a large, too is to examine the arteries carefully during life comparing the information which we obtain by means of the sphygmomanometer with that which we can imagine and our convey to us. I have seen many cases in which the sphygmomanometer persistently recorded a pressure of 100 mm. Hg or more and yet my fingers conveyed to me the impression that the pulse was weak, and the actual pressure of the blood low (and, conversely) from an examination of the general condition of the patient.

the fact that the pressure will go only 100 mm. Hg. at the heart. With this evidence before us I thought it well to caution to those that the sphygmomanometer gives us a very measure of the pressure in the arteries. It was necessary for us to suppose that a patient who had a dilated heart, low diastolic pressure, or the slightest evidence, and unless of the left and right, could have an actual blood-pressure of 200 mm. of Hg. in the peripheral arteries.

There is evidence that if a constriction through which there is a steady flow of fluid, a mechanical constriction, goes on to stop the pressure, I do not pretend that we have made a demonstration, which the pressure pressure is the same as the pressure in the peripheral arteries. When the pressure is the same as the pressure in the peripheral arteries we have the following evidence of course. The peripheral arteries constrict and therefore the flow is diminished. As a result the pressure falls while the pressure in the peripheral arteries falls. It is known that the total capacity of the arterial system is diminished and as the total capacity of blood remains the same that which is driven out of the arterial system is very much reduced in the venous system which therefore dilates. Meanwhile the pressure in the small arteries and capillaries is lower than normal and the heart, besides its large thrusts in the peripheral arterial beds, must finally, and finally the blood flow at the constricted arteries is negligible. Besides this, the heart, the fact is, cannot pump out, if the heart is working, for a time it will, and no symptoms appear. Eventually however, if the heart is not quite healthy, it becomes exhausted and we get backward pressure into the pulmonary and venous circulation and capillary dilatation and following this, the whole series of symptoms and physical signs which we call cardiac insufficiency.

If this time the heart is really becoming weaker and certainly may not be working with its normal force is evidenced by weakness of the heart itself. All this time it must be kept in mind that while the arterial pressure is high the pressure in the constricted arteries and the capillary pressure is lower than normal. When we know, as in this case, to be maintained in addition to these signs and symptoms, of heart failure a sphygmomanometer reading of 200 mm. of Hg. in the constricted arteries we must come to the conclusion that this is not true blood-pressure. We know that the reading is obtained from the constricted arteries because we can feel these arteries when in the administration of a manometer. We must also remember that when an artery goes into a state of hyper-tense constriction, not only is the lumen diminished but the wall is thickened and hardened owing to the fact that a smaller lumen is surrounded by the same amount of muscle in a contracted state. In addition, if the high pressure in the branch artery were entirely due to peripheral resistance, so to the fact that the pulse wave is lower conducted along a rigid artery we should expect to find that the actual pressure would be lower, but as already pointed out this is not by any means always the

ment. Hypertension kept about the ruled average level, certainly above the hypotensive level.

Several changes of temperature and pulse, especially a high sphygmomanometer reading, were observed in the case of a girl kept at a very low level of oxygen, probably not from hyperventilation, however, but from all-around distress. The high readings, however, did not indicate hypertension, usually thought to exist when the pulse is unduly rapid, since the normal rate was, in regard to the pulse, of normal rate of blood flow.

The majority of these cases showed the same phenomena, namely, high sphygmomanometer reading along with the signs and symptoms of a failing heart, as indicated by rapid, irregular, weak, and breathless pulse. This was brought out very clearly the fact that as the heart gradually returned to strength the sphygmomanometer, if not the sphygmomanometer itself, in a location of blood pressure, not only fell but also showed a corresponding, or, at times, a fall. This fall occurred on the subsidence of a vasomotor and vasodilatory, with it a relief of the symptoms was brought about. In some of the cases no adjustment of the sphygmomanometer reading was high, the vessels (arterial and radial) hard and resistant to the touch and the heart failing, but after a few days treatment the pressure fell to normal, the arteries became soft and the signs and symptoms of heart failure disappeared. One case was particularly notable—a male who on admission had a dilated heart with a rapid, irregular, weak, and breathless pulse, and a sphygmomanometer reading of 235 mm. of Hg. His pulse was rapid, weak, greatly irregular and contained no diastolic elements. His arterial walls were irregularly thickened and felt distinctly hypertensive. He was given a vasodilator and a purge. Next morning his symptoms were considerably relieved and his sphygmomanometer reading was only 144 mm. of Hg. The change in the condition of his arteries at once arrested attention. The walls still felt slightly thickened, but the hardness and resistance, or, at times, the rigidity, had quite passed off. Under further treatment his arteries remained soft and his pulse never exceeded 144 mm. of Hg, being usually considerably lower, and along with this his symptoms of heart failure quite disappeared. On the day of his discharge his pulse was only 124 mm. of Hg, and this, compared with 235 mm. of Hg on admission, was certainly striking. In this case the evidence seemed to point with no uncertainty, beyond to the fact that the original high sphygmomanometer reading was to a great extent due to the distension and hardness of the hypertensive vessel wall.

Another case, who on admission showed a sphygmomanometer reading of 200 mm. of Hg, was also instructive. In addition to this high reading the condition was very much as indicated by the first heart signs, as shown, weak and breathless pulse which were present. Ten days later the patient's condition was worse. His condition was worse, as shown by the accumulation of all his previous symptoms, and yet in spite of this,

the sphygmomanometer on upper and a pressure catheter in the femoral artery that appeared to be on my hand was the last thing I felt before consciousness and therefore the power of the heart was undoubtedly maintained as the pressure as given by the sphygmomanometer was not only not diminished but was actually increased. At this stage a vasodilator was given and the patient showed an immediate improvement, long spasms being markedly relieved. I was instead of finding a corresponding increase of blood pressure, perceiving the sphygmomanometer gave a no sensation of blood pressure, we found on the contrary, a fall of 40 mm. of Hg. There upon the obvious conclusion to be drawn I think was that the sphygmomanometer was not giving us a true measure of the pressure, of the contained blood but of the resistance of the hypertonic vessel wall. At the administration of a vasodilator the vessel wall felt instantly less resistant, and yet at the same time the strength of the pulse wave as determined by the finger, felt decidedly greater, and, in addition the symptoms of cardiac debility were greatly relieved.

Sometimes the high reading is caused by temporary constriction of an artery where the arterial wall shows a tendency to go into a state of spasm, owing to which the maximal pressure runs up to 220 mm. of Hg. or on some occasions as high as 300 mm. of Hg. Along with this the patient suffered from severe breathlessness together with symptoms of cerebral anoxemia. The condition was immediately relieved by 1 to 4 gr. of methylaminophen, after which the pressure fell over 100 mm. of Hg. While in hospital this patient had many of these attacks, but they were invariably relieved by a vasodilator.

I have seen other cases similar to the above. One was a man in one of H.M. ships who suffered from severe attacks of "ailments." From the condition of his heart and arteries I was of opinion that these attacks were not "ischemic" but "angospasmodic." His heart was enlarged and his arteries were thickened, during the attacks they felt like aneurysms. Fortunately I was enabled to take a sphygmomanometer reading. The diagnosis was, however, confirmed by the fact that the man died shortly afterwards in hospital from "heart failure."

The difference between these two types of cases must be emphasized. In the one, which may be called "angospasm," the attack is temporary, and very seldom is obstructive; the spasm may be generalized or partly local, and is probably due to a large dose of some toxin being suddenly discharged into the circulation. In the other type, hypertonic, the spasm is generalized but not so sudden and is continually present. It is probably due to small amounts of toxin continually being set free into the blood stream. Both types, if not treated at the end lead to the same condition, hypertrophy of the ventricle and degeneration and fibrosis and eventually heart failure. The toxin whatever their nature may be reach the tissues either of the medium sized arteries by way of the vaso vasorum, and by their irritation set up spasms. Arterial spasm will naturally

and they have increased water blood pressure, hence the elevated heart action, for the point on which I particularly wish to lay stress, and which is emphasized by the note mentioned is that when the heart does fall the operator can make reading instead of talking to the affected area steady, constant, more recovery takes place the pressure falls and then I think it is in this time period we have that the vessel will read when in a state of vasoconstriction, a definite constriction to compression.

At present, certain tabulations follow for you can figure I have been asked to tell you that that these incident and asked whether whether more numerous to the touch than one would expect for men of their age (Fig. 20) I stopped by using a reading, with the sphygmomanometer I determined that it was an abnormally high reading. Then let me explain briefly the construction of the cardio-tachometer system of all readings, which is the heart and I then found that a high percentage of men who were 20, 25, 30, 35 and 40 years, with very numerous had sphygmomanometer readings of over 175 mm of Hg. This is high for men between the ages of 20 and 40, and when the readings exceed 175 mm. Hg, it is definitely abnormal.

Following it then follows the open work and I wanted you 175, the pressure measured a system of pharynxes. I thought the fact is, however, I had not noticed in dry results, as such as a cold virus of pneumonia, and also reading was nearly higher than in the pharynx vasoconstriction, but would expect to find.

The following tabulation of the pressures on record is that after 1911 between the ages of 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, and the average of the positive group for reading values between the ages of 20 and 40 is 144.5 mm of Hg, whereas between 40 and 50, the outside limits of normal variation can be quoted as 140 mm. It is noted by adding an additional 10 mm. from the sphygmomanometer, then reading, say pressure above 140 mm of Hg, which amounts to 150 mm between the ages of 20 and 40.

Finally, it seems that certain pressures had to be observed in taking a sphygmomanometer reading, and that the first reading may be considered abnormal, that the readings were using to a certain amount of vasoconstriction to the subject and also from the fact that repeated readings took in successive positions of the tubular end of the vessel. In every case at least two readings were taken and in many cases more, the lowest reading being recorded.

From the attached table of my results it will be seen that the percentage of men who had sphygmomanometer readings exceeding 140 mm of Hg increased steadily after one year's service in submarines, being 11 per cent, 24 per cent, and 33 per cent as compared with 20 per cent, and 12 per cent for one year and under. The percentage of men whose arteries were somewhat thickened, and constricted to the touch increased in the same way. Finally in every case where the sphygmomanometer



Age Group	Percentage
18-24	85
25-34	80
35-44	75
45-54	70
55-64	65
65-74	60
75+	65

	Number of cases studied	Percentage of cases with Mandibular fracture	Percentage with mandible fracture only	Percentage with mandible and maxilla fracture	Percentage with mandible and maxilla and other fractures
Patients with less than two joint injuries	59	60	60	9	17
Patients with one unilateral fracture	30	45	43	5	25
Patients with one joint and one unilateral fracture	21	60	58	19	10
Patients with three or more unilateral fractures	88	80	75	4	14
Patients with two joints and one unilateral fracture (or more)	55	60	50	5	19

PLATE 1

	Number of men employed	Percentage with earnings of \$10.00 and over	Percentage with earnings of \$15.00 and over	Percentage with earnings of \$20.00 and over	Percentage with earnings of over \$25.00 and over
Buildings with less than one year in construction	38	55	8	10	14
Buildings with one year in construction	35	65	15	25	26
Buildings with two years in construction	33	66	20	30	34
Buildings with three years in construction	24	58	20	25	29
Buildings with four years in construction (no more)	19	63	25	35	37

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

[illegible]



These common elements, *effluvia*, which quite small in amount compared with what may contribute to great biological normal working of nature. Was, it is, but blood-pressure is not it due to a certain amount of hypertrophy and hypertonus of the arterial walls?

In a small number of the men examined a high reading together with a hypertrophied heart and arterial vessels were found, and on these men I should have no hesitations in saying that the reading gave an indication of actual blood-pressure. All these men gave histories of an athletic life and the most only sustained one or two.

In the great majority of men however there was no sign present—such as an enlarged heart, hypertrophied vessels or a renal condition—in evidence an actual increase of blood-pressure, and the reason of the renal walls seemed to point to the fact that there was quite enough thickening present to account for the slight rise in pressure. The following I put down as the last condition was a certain amount of hypertrophy present. This is a condition which in view of the probable etiology of hypertension, one might quite well expect to find in men whose conditions of life are similar to those found in the tubercular cases. In these men certain of the supposed pathological lesions of hypertension are quite likely to be particularly active. The condition is possibly considered to be brought about by some toxin or irritant in the blood stream. The known antecedent lesions which cause hypertension are derived respectively from

- (a) The metabolism of the stomach
- (b) The excretory portion of the primary body
- (c) The participation of poisons in the excretion

Regarding the first two of these we know very little. We are aware that alcoholism has a definite poison action but under what conditions it may be absorbed or excreted or pass into the blood very little evidence is forthcoming. What it has been shown by T. E. Elliott (8) that during pathological and physical exertion, the working of it is rapid, there is no proof that a condition of hyperacidity which expresses itself clinically as hypertension exists, and so far as the evidence goes there seems to be no connection between the condition of the stomach glands and arterio-sclerosis. The same may be said with regard to the primary body. It seems to have a similar action on some cases but seems to have the opposite effect on others. As regards excretory toxins also much that we can say is under discussion.

Certain substances come from the body and under some unknown conditions may pass into the body. Having in the composition of the body substances—acids and bases—great difficulty is experienced in identifying these various constituents, since of these are so available as to make definite separation and tests impossible. It has been stated that the products of ordinary bacteria fermentation, including the acid bases, are not likely to have an extensive vasoconstrictor action. In chronic hypertension and in



circulation, following upon a decrease in the blood content of the body, and consequently upon the various phases of the compensation of circulation in the various organs.

There is likewise no probability of a direct compensation of the peripheral circulation by an indirectly more rapid peripheral circulation, owing to the nature of the process of peripheral compensation in the various organs. It has been repeatedly pointed out by experimenters and stated in subsequent blood flow, a normal and a compressed state in the various organs, the action of CO<sub>2</sub> in the blood, water, and other factors. (Effect of blood pressure.) It would seem indeed that all the changes of the rate of circulation, the changes in recovery by the regulation of the peripheral action of the capillaries.

What will be the effect of the various changes in the blood in its pressure and eventually on the various?

The heart must work with more force in order to drive the blood through the capillaries, and as a natural result of this we should expect to find a raised blood pressure. But authorities state that neither there is no direct correspondence between arterial pressure and venous pressure, consequently a measure work to meet the stress and tension, the venous pressure probably takes a principal part. They go on to state that if the results be as stated that the blood pressure is high, that the blood pressure must be during the systole and diastole of the heart with various changes in its velocity, elasticity and so on, it is not the action. To quote United States again: "The blood pressure is a constant, being over long periods of time, would differ very slightly in modifications in the constant, whereas the stress, the stress, the increased viscosity of the blood, do suffer modifications, which is high and compressive."

We point in addition a certain amount of evidence, just as pointed out, to show that when the arterial wall becomes less elastic the result is from arterial changes or from a peripheral process, in a number of cases, during.

In subsequent changes we have a measure amount of CO<sub>2</sub> in the blood for many hours in a time of frequent intervals and a frequent periods of time varying in length from one to four years. The increase of CO<sub>2</sub> brings on the true increased viscosity of the blood, and will be shown that increased viscosity and an abundant body acting, varying in the periods produce changes in the arterial wall. These effects, being with loss of elasticity from vasodilation. Following upon this we have a hypertrophy of the muscular coat with increased activity. For the first time now take up the function of the heart elasticity. That this time happens is proved by pathological investigations. The change is of course permanent and here therefore we have present the most common which produce a raised up, consequently making apart from an actual increased blood pressure, i. e., hypertrophy and contraction of the muscular coat.

1901] *The response to arterial hypertension in blood-pressure*

In conclusion, I think that the result of my experiments is leading rather to a more or permanent change than to a merely altered response according to the number of years service is due to a certain amount of hypertrophy and hypertonus in the muscular coat of the arteries.

The most probable explanation of this condition seems to me to be the increased amount of CO<sub>2</sub> present in the blood of these men for long periods at frequent intervals. On the removal of the condition the blood would of course regain its normal viscosity, but continued return of these conditions would bring about the structural changes in the arterial walls which have been mentioned. With the removal of the anomaly for long periods the condition will come to abate and in time the arteries will regain their normal state.

Why only a percentage of the men are affected and not all I cannot say. It must be remembered, however, that the actual physical or chemical cause is not the only factor in producing a thickened vessel. If that were so, in view of the various things which have at one time or another been taken into the arterioles, we should all have thickened arteries, whereas actually only a certain proportion suffer from hypertension. It is a very difficult fact indeed that arteries of certain persons are more liable to degeneration than others, and that, together with the fact that all the men have not been exposed to exactly the same conditions, is the only explanation I can suggest. While interested here, we must at least acknowledge the possibility of the blood at that time in condition which is most certainly present in all individuals taking at some time or another both factors, however they be acting together.

REFERENCES

- 1) Increase of CO<sub>2</sub>. "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 2) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 3) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 4) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 5) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 6) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 7) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 8) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 9) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.
- 10) "The Influence of the Arterial Blood on the Heart and Blood Vessels." *Arch. Intern. Med.* 1900, 35: 251.



maternity -qq(m)- were not legally forthcoming, preventative work had not been commenced. The catastrophe happened. The next nine days maternity A-Thames was exceptionally high between the months of June and October 1918. Practically every other and near became infected and had to be ordered to, where where then administered and had to be isolated with a few million isolation. A military guard of eight four men was placed at bedside infection after a stay of a few weeks. At the nursing unit was transferred for the next was the same. Here also the nursing staff of 100 to 150 staff adjacent to a much below any percentage could be moved into the nursing when needed could only be kept to obtain with the patients directly serving under large numbers of cases becoming sick and dying in detail.

The studies of these two plants, proved to be of a particularly significant type, and allowed to understand their (where necessary) nature constants. With this aim to draw this local material before the summer of 1917. As a result are therefore supplies of various material set, positive and negative in its were obtained from Mladá and Blatná, before proceeding to survey a whole plant and report on the possibility of carrying out definite work material (average specimens) with the end, of April 15 hour. It was realized that various in its nature work under the conditions stated, chiefly depend on such as: power, proportion. Personal photographs, such as the use of microscope, but it is more expensive during night operations and sunny hours, which is when the whole personnel is required in groups or when more employed in the night.

There are concerns regarding a differential application of potential restrictions: work and well-being opportunities. The places under consideration are Thessaloniki, Kalamata, Ioannina, Macedonia, Ioannina and Epirus.

## T 1852

<sup>3</sup> Situated in the southern Tigray, and only separated by a few miles from the Eritrean and Ethiopian coast, most Karaites (Tatars or perhaps the more generic name of all the Tatars) believe in Christianity, mainly Catholicism, as well as co-existed with neighbouring Muslims. Hence, any law and the between and the villages are mostly peaceful with up the hill take an experience has taught the language of managing low-lying villages between the mountains of Jima and Dekeba.

At the foot of the bank and extending far many miles, are the *Stromos*, dense groves of *Ulmus*. These ancient trees are beautiful and are of great value commercially. They grow on an enormous belt about a mile deep in water and extend along the north coast of the island.

The wetlands was between the edge of the belt of trees and an extensive marsh occupying a triangular spot of proposed low-lying land roughly a square mile in size. The marsh was composed of pines and shrubs overgrown with rank marsh grass and sedges. Numerous isolated pools were scattered all over across and between ridges. The surface water, later







The greatest danger of camp life is the risk of mosquito bites. Mosquitoes have been numerous in previous years, especially when placed in the immediate vicinity of water and grass. With houses built on elevated ground, the mosquitoes are kept away from the camp, but the nearest low-lying places and with the regard to the direction of the night wind should be selected. It is also important to choose high ground, then near the beach is the best best position.

A party of Greeks was collected and trained under a master for Fowling. It was decided to clear the marsh near the residence, and to clear the area near the camp by burning and cutting away bushes.

The implements required are spades, axes, knives, digging hoes, rakes, and shovels, on long handles for digging weed from between large trees, sprayers, pump, and of wood paraffin complete the outfit. The oil used was heavy kerosene obtained from the Naval Stores Office. Matches were used in great quantities with a special long-stem paraffin obtained from the Naval Stores Office. The sprayer was used to spray the ground with paraffin. The sprayer was used to spray the ground with paraffin. The sprayer was used to spray the ground with paraffin. The sprayer was used to spray the ground with paraffin.



FIG. 1. DRAINAGE DITCH.

The work of clearing the marsh was done by the Greeks and carried on up to the highest of the marsh. The water was in the camp, and a small stream of water was drawn from the drainage system. The drainage system was done by the Greeks and carried on up to the highest of the marsh. The water was in the camp, and a small stream of water was drawn from the drainage system. The drainage system was done by the Greeks and carried on up to the highest of the marsh. The water was in the camp, and a small stream of water was drawn from the drainage system.

Without drainage in the marsh, the water was in the camp, and a small stream of water was drawn from the drainage system. The drainage system was done by the Greeks and carried on up to the highest of the marsh. The water was in the camp, and a small stream of water was drawn from the drainage system. The drainage system was done by the Greeks and carried on up to the highest of the marsh. The water was in the camp, and a small stream of water was drawn from the drainage system.





place on the night of August 17, 1947, when the mosquitoes and *Haemaphysalis* were found. Located by the Germans, near Convent, near Pavia Lago. The house was still the best place and spent the last part of these three nights in uncomfortable sleeping quarters among the trees near the veranda.



Fig. 1. Sleeping quarters, Convent, Pavia.

Many people are victims of malaria. They had been exposed to all forms of malaria but *Haemaphysalis* during the war. The result of this was that from August 30, 1945, onwards the children carried a heavy burden of all cases of malaria, although exposed during three nights of exposure.<sup>1</sup> The children present had been considerably delayed in growth and all the symptoms of a malarial fever. No other symptoms occurred, nor were there any complications. The cases, though fairly numerous, especially during the morning were mild and appeared the usual symptoms being present lasting about 48 hours, accompanied by headache pain in the back, and in a few cases by shivering. No definite rigors were seen and no case proved to be any serious. The type of infection was mostly tertian.

<sup>1</sup> Parasitism was considerable until 1946, but decreased by 1947. In 1947, and especially from August 1947 onwards, it was felt that the risk was from malarial fever only at Convent, but reached 80 per cent. in other districts surrounding it.

very numerous, the birds were very scarce. *Chlorophanes* were very good and very good (mostly) of *spizella* (mostly) *spizella* (mostly) the same individuals were very common. The large amount of open water in the prophylaxis had a most marked effect in completely modifying the attack which was of short duration. After recovery, the same returned to duty, and the prevailing rule was low.

The treatment, and operations on prophylaxis, will be discussed separately.

The case was removed by motor lighter to a hospital that had been previously prepared at Lumbago, fourteen miles from the windmill on the south of the island. This locality was free from mosquitoes, mosquitoes and admirably suited for a hospital. The house formerly belonged to a German man who had been placed on a plantation overlooking the sea, and surrounded by good crops. The quarters above on the ground floor were made into large air sheds. The case rapidly recovered when taken away from the place of infection and put on a thorough quarantine treatment.

The remainder of the season passed off quietly, and no more cases occurred after the middle of October. The season when compared with the previous year had passed the rules of the personal prophylaxis, when it could be carried out and also had provided a good basis for any future drainage work.

During the winter of 1911 deep drains were made in most of the water-borne water and in person the flooding of the marsh. The marsh was then by April 1911 the marsh was completely dry and could be cleared by burning so that large areas of old swamp land were reclaimed for cultivation of maize crops by the natives. Work was commenced on good time to prevent any breeding and was continued as in the previous year. The results in 1911 were most gratifying. No mosquitoes were seen in the River for four miles and no cases of malaria occurred except the one who was left as a maintenance party. The same body of men had been recruited from Ship to Island. Quinine in prophylaxis, was given in solution instead of tablets in doses of 1 gr. twice a day after meals every fifth day.

The whole area was dry and no larvae were discovered within two miles of the camp.

When I found I had opportunities for observing the flight of mosquitoes and although the mosquito is low ground and does not usually fly far from the breeding places the distance of flight entirely depends on the wind and the nature of communications. From a belt of dense trees and a steady prevailing night wind the mosquitoes very much for me and a half miles but they did not reach our camp which was two miles away from the windward swamp. The natives are convinced that mosquitoes are blown across the Windward from the swamps of Lumbago a flight of three miles, at the nearest point. Between Lumbago

and Indians there, in the usual island. A *Phragmites* swampy lake, known throughout as the island, which is design (Bamun) and Indian.

Maharastra, it should be noted that the area of water (Bamun) control, accompanied by operations of irrigation, and would greatly enhance the value of the island both from a commercial and a health standpoint.

#### MAHARASTRA

The water system of Maharastra was situated a few miles north of Kharadon Point, at the northern end of the peninsula, over which north-west end of the island. The water was drawn from the lake ground near the beach. Below and extending beyond the beach, a well cultivated valley was a stretch of about the equivalent of a mile (one) canal partly by water back water from the lake, and partly by a series of springs within a short distance of the beach. Near the beach was a large shallow lagoon which collected the water surface water. In April 1975 the marsh contained extensive areas of swamp and pools, which were important in places but could be very well irrigated out from the marsh. The whole area was very much overgrown with bushes and tall grasses of these marsh grass.

The swamp was well placed on a hill to the north of the marsh, and was irrigated chiefly of water from the lake, which could easily be made irrigated with water from the lake. The marsh was irrigated every morning on days of 10, 15, and 20, on alternate days.

The beach had a well placed system in the water, and had a swampy pool, below it.

On surveying the marsh, it was determined that there was a natural hill towards the sea, which would enable the whole marsh to be successfully drained if only the canal be accomplished before the hatching out season in May and June. The commanding officer, himself an engineer, was largely interested in the work, and was also had the benefit of some experience and more through the completion. A large party of British was obtained, and work commenced at once.

The scheme was to drain the marsh to the lagoon and then to connect the lagoon to the sea by means of a pipe canal under the beach. A large amount of clearing and burning was done as a preliminary to construct a deep trench without drain along the lower part of the marsh. To this deep drain other channels were led from all parts of the marsh. Work proceeded rapidly and in two months the whole marsh was dry and good without drainage was in operation. Bushes were now used to prevent a little wandering along and through the drains. The second operation was to locate all the hidden springs by cutting away the rocks. Each spring was then made the head of a drain and pumped up to the general system. By this means the swamps were reduced and dried. A trap was now placed over each spring, which effectively sealed the whole drainage system.

In July, 1915, work had been successfully completed and the whole creek bed from mesa to meadow. The results were as follows: (a) the creek bed was accomplished only four fresh runs of mules occurred at Hamilton in 1915 and a very few mosquitoes were seen.

During the winter of 1917 long drains were dug to take the water from the water from the valley below and to prevent the flooding of the meadow. In the spring of 1918, we were able to extend such another drain and to completely free the neighborhood from mules. There were no mosquitoes seen, no signs of mules occurred, and prophylactic quinine was not considered necessary, nor given.

Hamilton is an example of the complete system of drainage in a previous extreme natural locality where the collection was caused by a defined area of swamp, which could be dealt with by local resources.

The entire drainage considerably improved the value of the land for pasturing and collection.

#### BRANSON

The northwest of Branson is situated on the Hamilton Valley, 12 miles west of the Branson Valley. It was first occupied here in 1915. Within a few days of the first part of the drainage and had caused considerable damage to the land in 1915.

There is a small drainage area, and a very good one in a hospital here and considered a camp for the Lower Branson Hospital. The Branson Valley was a railway road, and in an extreme work, since the drainage was done in conjunction with the water raising system. The drainage was based on a low lying meadow of land with nearly level between it and the Hamilton river. The meadow dried early in the year having only the remains of collection visible although a great improvement.

The low drainage place was fairly a large drainage system near the bank, and usually, a series of swamps, at the foot of the mountain, the accumulation of full spring water.

The camp was moved to a better site near the river, and mosquitoes proof here, and for all the drainage. The officers lived in a mosquito proof house, and for all the drainage. The officers lived in a mosquito proof house, and for all the drainage.

Work on the drainage was commenced early in 1917 and continued on that cutting down and burning all the surrounding bushes and growth on order to eliminate shade and to prevent the wind to blow across the surface of the water to promote evaporation. The rocks were used out by raising them on long handles, and if used they were out. The drainage system at the edge were used like in, and a defined bank created. All overhanging growth was cut away from the bank. The edges of the drainage were used away back.

After the work was completed it was noticed that mosquitoes only collected the quiet meadows and mostly shallow edges, to deposit their eggs. The best results of cattle on the other hand, became collected with

near Leno and Maysville (about 100 miles from Dayton, O.) were the only ones observed in 1917.

The Army supplied the necessary rifles and cartridges for the better work of killing the war machines. The following parts of its large loggers' traps of the most better type, cleared and baited and set after securing all wood and growth.

No trace of military machine guns was found and it was found that these were seized by the whole vegetation methods adopted by the natives. Part of the more water would be destroyed and allowed to flow over the more fields in roughly prepared channels. Hence, the formation of many wooden pools which subsequently became infected. Scarcely if not completely controlled, as a measure to prevent infection and thus much to spread the infection. In 1918, the Army undertook the vegetation, and improved the proper efficient drainage after a system.

In 1918, quercus prophylaxis was withheld until there was evidence of a being required. The last occurrence of the end of July. Quercus periods was commenced on August 1, or down of 10 or after breakfast and again after tea, in addition every fifth day. No further cases occurred until the end of September, when two more were reported. This fact is interesting in that macroscopically proved more but occurred shortly before the quercus administration was commenced. September is always the worst month for malaria in Malakal. After the middle of October the risk was equally high.

The epidemic was arrested after the signing of the armistice with Bulgaria.

#### MALARIA

Malaria in Malakal continued to two more years namely the malarial surroundings of Port Leno especially to the westward, and also to the large marshes along the south end of the Gulf of Ballon. These two areas are definitely malarial, but in 1917 there appeared a considerable decrease in malaria in Malakal owing to the large number of refugees from Java. Many an outbreak of typhus was also caused by the crowding of these refugees into the Old Fort at Malakal Town.

The epidemic, situated at Thomas 3 miles north of Malakal had formerly remained free from malaria but in 1917 a few cases occurred, as a result of the general spread of malaria by refugees. The epidemic was shifted to the malarial and had to be prevented. The only alternative was was Ballon where malaria was known to be present. However, Ballon had to be occupied for military reasons, and a survey of the locality was made with a view to seeing how much anti-malarial work could be undertaken. The cause of malaria at Ballon was only too obvious. Large undrained swamps existed, caused by the retention of water from, unable to find an outlet through the rocky beach.

The epidemic was forced on a few months of land between up



However, unlike the 1971–1972 Spanish flu, when nearly 50 million of the common but not deadly H3N2 virus was responsible for the massive number of deaths, the 1968 Hong Kong H3N2 virus had a high proportion of the deadly H5N1 virus, which was deadly to 60% of those infected (1).

The authors are indebted to Dr. J. H. R. Macdonald for his critical reading of the manuscript and to Mr. G. A. B. Smith for his assistance in the laboratory.

A more serious problem dealt with salmon and steelhead trout by making a channel from the stream to the sea and by damming up the summer lagoons. A dike 200 m is reported to permit movement of fish during migration, while the fish in the sea was mainly stored on board or would daily drive when assisted by north wind. This drainage was successfully accomplished by May. A large amount of farming had to be done to clear the edges of the ponds, and an extensive reforestation. The reforestation at the end of year was dragged out of the lateral shallow extensions and old natural water channels. All the desired walls were located and sprayed over a week. Their work could be filled in on account of three rain. A series of ditches containing stagnant water that had overflowed from the village springs, was cleared out and drained to places where the waste water could be concentrated and sold. The ponds remaining in the rocky bed at the rear were found to be stocked with small fish and remained free of larvae. The ponds were maintained up where possible in order to allow the fish free access to all of them.

The vegetation had remained free from occupation during the summer. The ichneumon plagues stated that the local drainage work, and other operations had had a marked effect in hastening the removal of watered vegetation.

Michigan, in the state of Illinois, could be easily equipped out of a high engineering school and available to provide permanent access to the river for all the waterways. At present the canal leads up the natural channels directly the Red water has in fact, the creek is much narrower and less.

100

Indochina is certainly the birthland of the *Rhipha* group. The mountains are precipitous and rich wooded. Deep ravines and gullies with narrow isolated steppes, lead down to the sea leaving no means for unspecialized breeding. The only possible breeding area is at the Pangkajene Valley in the north west of Indochina, between the villages of Pangkajene and Centra, where numerous elevated the information that great of numbers did occur, but closely in Centra, the reason is that here that the very rich forest

The village is a small settlement, but with locally a wide resources of unimproved land, with the others.

The archaeological site is situated in the center of the valley on a low hill surrounded by agricultural fields (see Fig. 1). The valley is flanked on the east and west by steep hills and is used for agricultural purposes. The camp buildings are of stone and corrugated iron and could be easily mistaken for modern structures.

[illegible]

Apparatus were constructed in April and contained eight flumes, by which four times as much water could be treated. The flow rate of the apparatus varied in time, depending on the amount of water supply, a necessary condition and was variable. All the smaller streams were steadily discharged into a narrow flow channel established by filling in any shallow places. They then ran along into the stream which passed below the camp. In places, in the stream it was necessary to cut away the banks in order to form a true and stable channel. All necessary alterations possibly done up to the next successful

The results concerning infection, indeed. No infections were seen in the camp during the last summer nights in August and September, and it was unnecessary to use antibiotics to all cattle. These cases of infection occurred in the period that the camp at the end of September.

100

The two plants seen at Phnom Penh, Cambodia, were found in November 1977, and on visiting the locality I found it situated on a small island, completely taken up with vegetable gardens and small scattered collections of that useful tree.

Each of these shafts about 10 ft. in diameter, contains its own irrigation system. One drop is 1 ft. high, possibly, more two or even perhaps the number of wells was placed down to this to be concerned. The water was raised from the well by pulleys passing over a wooden wheel the whole apparatus being greatly primitive, a third-wheel derrick, attached to a fixed line, being the water power, and a winding round to the base of the cooling wooden shaft. The water was raised by men in large open stone cisterns, about 10 ft. long by 8 ft. wide, and 3 ft. to 4 in. deep, lower one off at intervals. On examination these wells, were found to be



Fig. 3. — Mounds on the west end of Lake.



Fig. 4. — Looking across the Lake.

in 1915, turning with white larvae and contained masses of shiny green ova. The larvae were so thick that they appeared as a black film on the water.

No suspicious larvae were discovered, nor was there any evidence in the water, as evidenced by the healthy appearance of the children.

However, at the time it was quite possible for malarious larvae to develop in these tanks and as we proposed to live in the vicinity it was decided to establish an antemalarial surveillance station. The camp was placed on a hill overlooking the sea and as far removed from the valley as possible. The Governor of Congo was approached through the French Consul in order to obtain authority for the naming of orders to the native population with respect to the tanks. The Governor and authorities gave every assistance in the matter. Orders were issued and posted upon the villages, and police supervision obtained. A series of fines were created incident with any neglect of precautions.

The instructions issued were that firstly all tanks should be emptied and cleaned out regularly once a week. Secondly that the scales of the tanks should be whitewashed to prevent accumulation of ooze. An inspection party consisting of the medical officer of the station, an interpreter, and a working party visited all the tanks at irregular intervals and reported any neglect to the police. If the tanks were found to be infested, then the interpreter would enter the subject and explain what was required. Any tank badly infested was sprayed with paraffin and oil. Certain tanks contained goldfish and were generally clean, but goldfish seem to love their appetites for larvae when restricted, many tanks containing both goldfish and larvae. The small larvae fish appear to be quite satisfactory as predators. The native population were educated the value of these measures which caused them very little extra work. The result was that the whole valley is at once cleared of mosquitoes, much to the comfort of all concerned.

Congo is a healthy island and much happened in a summer season.

#### QUININE IN PROPHYLAXIS

I have been interested in following the controversy during the period of the war regarding the value and dosage of quinine in prophylaxis, especially in West African climates, which appear to be more resistant to quinine than others in more recently studied parts of the world. The general experience given that daily doses such as 1 gr. might not prevent the disease, but still a power of considerably modifying its onset and course.

My own experience in France in 1913, corresponded exactly with that when in the Gulf of Mexico, namely that doses of 18 gr. and 5 gr. given alternately every evening have a very marked and certain effect in reducing the severity of the attack, and of increasing the tendency to hyperpyrexia, cerebral symptoms and vomiting; the course of the attack being short and readily controlled. The combination of the disease certainly prevented the use of quinine prophylaxis in men who had probably never been out of

continuous exposure to light from overhead as in parrotfishes. I considered this method of treatment in terms of other methods commonly in use for the control of ectoparasites on fish and concluded that it was superior.

In 1933 I suggested a technique for the control of the gill parasite, *Ichthyophthirius*, on the basis of these observations on treatment of ectoparasites. The suggestion of low-intensity light as the only form used and was given a trial at various times every fifth day in Belgium. It gave also excellent results against leg parasites. The reason for this method being so effective in intermittent effective treatment with quinine in various doses is quite reasonable and, if possible to overcome the danger of producing a quinine resistance, caused by giving continued smaller oral doses. Because the internal digestive and digestive system have come to use it and organs permanently affected. It was hoped that 7 days a week would later the power of preventing the development of the parasite and so that an early cure before symptoms appeared thus showing an attack of disease.

These doses were given at Tazewell in 1936 under supervision, care being taken to give the dose on a full stomach. No unpleasant symptoms of quinine occurred and none any signs of digestive disturbance noted as a single case.

No cases of malaria occurred on the part of those men left as a consequence partly on the water, where previously malaria had occurred in 1933. This is perhaps partly a bar to the use of the dose as a mosquito proof bed and possibly used a net. Night exposure was reduced to a minimum.

The experience already gained, in 1936, in the treatment of the value of this method of quinine prophylaxis, namely, out of 120 men, none contracted malaria during the last week in July before quinine was started. On August 5 quinine tablets were commenced and no further cases occurred until the end of September when two sporadic infections were reported.

My conclusions are therefore that quinine should be given in solution in intermittent oral doses in known malarial localities where malaria is expected and especially under active malarial conditions. If however, this can be properly used every night, and there exists a successful anti-malarial prophylaxis then quinine may be reserved until the use is indicated.

Care precautions necessary when dealing with men accustomed to the constant incidence of the light are to advise the wearing of glasses to prevent eye fatigue and to avoid bathing between the hours of 9 a.m. and 1 p.m.

Anti-malarial treatment is easy and superior. A very effective and practical preparation is supplied by Price's Patent Quinine Co. It is sold against the price of 10s. 6d. and is made in the form of Price's Night Lights. The instructions are a little more. It is slightly sweet to the tongue and which called on the system of malaria.

medium. It is supplied in small tins, is always handy and was freely used, proving quite the best preparation for active service.

#### TREATMENT.

The treatment of a malarial infection involves itself into, firstly, the treatment of the acute pyrexial period, followed by a period of tonic or hospital with no pyrexia, and subsequently by a prolonged course of weak tonic carried out to prevent relapses, when the case has returned to duty or has been evacuated.

The type of case seen at Tientsin in 1917 was very much modified, and the pyrexial period was short, usually over by the third day, but resulting longer in relapsing infection. Paroxysms of temperature were not very marked, no rigor or acute symptoms appeared. At the onset of fever the patient was placed in bed and carefully attended, a dose of calomel 3 gr. was given followed by castor oil. The next night 15 gr. of quinine sulphate was given. The man was moved to hospital as soon as possible and for the first few days was given from 35 to 45 gr. of quinine a day. If any case resisted treatment or had any paroxysmal symptoms he was given an intramuscular injection of quinine in hydrochloride 1 gram in 2 cc. of sterile water from ampoules previously supplied to all stations. My further experience in the use of intramuscular quinine has been mainly favourable. I have never yet seen any unfavourable results. I do not think they should be used in subjects of advanced debility with malarial wasting. The injections were given in the buttock using the saline sterily. We had no case of cerebral infection otherwise the treatment would have been by the intravenous method using 10 gr. of the dihydrochloride in 10 c.c. of prepared saline fluid.

The patients were kept in bed until the pyrexia stage was definitely over. The second phase of treatment was then commenced and lasted three weeks. Quinine was given to 15 gr. doses three times a day the preparation of quinine used being the basic sulphate in acid solution. A caution that was advised during this period.

Several cases had a short rise of temperature on the tenth day after the temperature had been normal caused by the invasion of a new generation of malarials. All the men improved satisfactorily, and there were very few relapsing types of fever.

I have come to the conclusion that the most successful treatment of malarial fever the pyrexial stage and in the subsequent course for the prevention of relapses, consists in the early and effective combination of a strong wide quinine. It is inadvisable to wait until anemic is well on in the appearance of anemic and quinine-resistant types of fever. This is especially necessary in cases where quinine has been previously given and in relapsing infections. *Malarium malarum* appears to be somewhat resistant to quinine, and is greatly benefited by the addition of arsenic, which is commenced during the second phase of treatment. The propa-

the stomach and their presence being diagnosed from the following analysis: contents (3 ounces) supplied in glass container, lower the parts of the stomach contents in the saline dish, being added to the specimen from the stomach.

The change of locality had a very beneficial effect on the patient.

The next course of treatment here three months, and is necessary in preventing relapses, at the same time hoping to cure the infection with the present late treatment. Insulin is now given intermittently with sulphadiazine. Two days treatment with insulin is followed by two days treatment with quinine, 10 gr. (4 gr. each week). If possible to prevent the loss of weight, then phosphate of iron or other general tonic is indicated. A cod-liver oil taken from Borden's Tropical Medicine can be supplied in various amounts as follows:—

1. Two eggsphosph.	10
2. One eggphosph.	20
3. No eggphosph.	30

The precautions advised for the prevention of relapses, and the avoidance of extremes of temperature, over-heating and over-cooling. One case of recurrent malaria occurred in a H & F plot on returning shortly after 1940 but due to cold and alteration of atmospheric pressure. Cases of cerebral secondary malaria are rare here, in previous international treatment with quinine, insulin and quinine. It is a valuable treatment for malaria.

Each man should receive a treatment, and during the night, history, and date of his infection, and the treatment offered with short occasional delays for the prevention of relapses. Several men are now coming into Fitzpatrick Hospital with post-malarial conditions after only diagnosed by the blood examination, revealing the relative increase in the large mononuclear lymphocytes.

Temporary benign Leucocytosis & C. leucocytosis B.F. has recently drawn attention to the value of the Amesby polymorphonuclear leucocytosis count in the diagnosis of these cases. The fallacy of diagnosis, often made by these examining blood films also can not be overestimated with the small human range, not to mistake blood platelets and mononuclear leucocytes for parasites, especially if they happen to rest on a blood corpuscle. The presence of cases under treatment are often observed, and stopped but the small range of double disease, and sometimes split in the small infected, grade.

The young island, after a month of interest, historically, their economy is yet undeveloped, many as required to undertake extensive damage before these islands will have the health and prosperity which would surely follow. In conclusion, I should like to repeat my gratitude to my colleagues at the various B & F groups, and to all officers and men of the H & F, who by their willing cooperation made possible that degree of success which was obtained.

# EXPERIMENTAL CONDITIONS FOR THE FINEST RESULTS

BY EDWARD L. HARRINGTON, M.D., U.S. NAVY, AND J. P. HARRINGTON, M.D., U.S. NAVY

For maximum effectiveness the highest possible utilization of health is essential. Experiments have been conducted and carried forward, accepted, rejected, and modified in the question of diet. With a view to obtaining better results, the object of this paper is to lay down a few principles, to give the subjects—so far as knowledge and experience of the authors allow—reasons to put forward the following observations and notes. Our remarks have been made with particular reference to sea-food intake systems, though I imagine they are capable of a wider application, inasmuch as they deal with 'dietary' diseases, i.e., scurvy and beriberi—diseases which, if accepted, are due primarily to defective nutrition.

Although the numbers of cases of such diseases are not relatively high as compared to H.M. ships, it is nevertheless my opinion, that many cases of scurvy of varying severity are due to the same cause, i.e., a defective diet. It is particularly impossible to keep ships which are serving in the Pacific well continuously supplied with fresh provisions, especially vegetables, and I feel strongly that some further consideration of the dietary supplied to the personnel of ships under such conditions would be of mutual benefit to the health of the Navy.

A comparison of the diet supplied to H.M. ships in the Pacific and that of the full service intake of United States, serving in Massachusetts shows that, while the latter have a more liberal supply of vegetables, the latter agree with regard to bread and meat. (For detail see the reader is referred to an appended note.) This would appear to be rather the converse of what might have been expected—judging from the probable frequency of the respective diseases for obtaining these supplies. In matter H.M. troops are given some six weeks of diet strongly recommended by H. Clark, E. M. House and H. P. Horton, and also by Major E. D. W. Craig, C.M.D., I.M.S. I shall refer later to the quality of these provisions and the proportion of immediate gain and harvest losses.

Generally, Naval diet compares favourably with that supplied to H.M. troops, though there are certain alterations which would add to the effectiveness of the diet.

In an interesting article by H. Clark and E. M. House on 'The distribution among foot-soldiers, especially those suitable for the retention of command of the volunteers, required for the prosecution of the Pacific and the Navy', *Journal of the Royal Army Medical Corps*, August 1907, the following comments were made:—



(1) *Tronemung*.—It is growing on a volcanic island mountain, the lava cone composed of cinders, pebbles, shells, boulders, (1) *Tronemung*, (2) *Tronemung*, (3) *Tronemung*, (4) *Tronemung*, (5) *Tronemung*, (6) *Tronemung*, (7) *Tronemung*, (8) *Tronemung*, (9) *Tronemung*, (10) *Tronemung*, (11) *Tronemung*, (12) *Tronemung*, (13) *Tronemung*, (14) *Tronemung*, (15) *Tronemung*, (16) *Tronemung*, (17) *Tronemung*, (18) *Tronemung*, (19) *Tronemung*, (20) *Tronemung*, (21) *Tronemung*, (22) *Tronemung*, (23) *Tronemung*, (24) *Tronemung*, (25) *Tronemung*, (26) *Tronemung*, (27) *Tronemung*, (28) *Tronemung*, (29) *Tronemung*, (30) *Tronemung*, (31) *Tronemung*, (32) *Tronemung*, (33) *Tronemung*, (34) *Tronemung*, (35) *Tronemung*, (36) *Tronemung*, (37) *Tronemung*, (38) *Tronemung*, (39) *Tronemung*, (40) *Tronemung*, (41) *Tronemung*, (42) *Tronemung*, (43) *Tronemung*, (44) *Tronemung*, (45) *Tronemung*, (46) *Tronemung*, (47) *Tronemung*, (48) *Tronemung*, (49) *Tronemung*, (50) *Tronemung*, (51) *Tronemung*, (52) *Tronemung*, (53) *Tronemung*, (54) *Tronemung*, (55) *Tronemung*, (56) *Tronemung*, (57) *Tronemung*, (58) *Tronemung*, (59) *Tronemung*, (60) *Tronemung*, (61) *Tronemung*, (62) *Tronemung*, (63) *Tronemung*, (64) *Tronemung*, (65) *Tronemung*, (66) *Tronemung*, (67) *Tronemung*, (68) *Tronemung*, (69) *Tronemung*, (70) *Tronemung*, (71) *Tronemung*, (72) *Tronemung*, (73) *Tronemung*, (74) *Tronemung*, (75) *Tronemung*, (76) *Tronemung*, (77) *Tronemung*, (78) *Tronemung*, (79) *Tronemung*, (80) *Tronemung*, (81) *Tronemung*, (82) *Tronemung*, (83) *Tronemung*, (84) *Tronemung*, (85) *Tronemung*, (86) *Tronemung*, (87) *Tronemung*, (88) *Tronemung*, (89) *Tronemung*, (90) *Tronemung*, (91) *Tronemung*, (92) *Tronemung*, (93) *Tronemung*, (94) *Tronemung*, (95) *Tronemung*, (96) *Tronemung*, (97) *Tronemung*, (98) *Tronemung*, (99) *Tronemung*, (100) *Tronemung*.

Of this kind little is known, except that it is not considered the highest quality of food, and is not used for stock, except in small quantities.

(2) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(3) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(4) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(5) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(6) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(7) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(8) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.

(9) *Maize (Cassia)*.—Grown in large quantities, but not used for stock, except in small quantities, and is not considered the highest quality of food, and is not used for stock, except in small quantities.



447 gms. These 3 mice died subsequently (on the twenty-fourth, twenty-sixth, and eighty-fourth days respectively), and none of them showed signs of the same signs with the exception of a few slight swellings. The infestations were repeated but there were no further deaths. They appeared to have died of some post-mortem infection.

Group III (hatched mice, joint, prepared on the preceding day). The average weight of the four remaining guinea pigs at the commencement of the experiment was 460 gms. One guinea pig died on October 13, 1915 (the four days). The same stomach contents signs of scurvy. Two guinea pigs died on October 26, 1915, and November 12, 1915 (approximately and exactly nine days respectively). The post-mortem examinations showed signs not of scurvy, but of a severe bacterial infection (see above). The remaining guinea pig died on October 28, 1915 (twenty-third day) and showed some definite signs of scurvy (bones brittle, with haem. and haemorrhages in the kidney and bladder walls).

Group IV (hatched mice, joint). Average weight of the five guinea pigs at the commencement of the experiment was 476 gms. All died after an average duration of life of thirty-two days. The average weight at death was 212 gms.

The post-mortem examinations showed that in all cases there were definite signs of scurvy (see above) in varying degrees. Clearly they were practical haemorrhages in connection with deficiencies (acid deficiency, particularly) from various other causes (trauma) and bone falling out.

Group V (Supply and Transport mice, joint, hatched mice, joint). It had also an average duration of life of fifty-three days. The average weight at the commencement of experiment was 461 gms. The average weight at the time of death was 391 gms.

The post-mortem examinations in each case showed signs of scurvy (see above). Clearly they were practical haemorrhages in the stomach, haemorrhages in the kidney and bladder walls, and one had peritonitis and two had extensive renal haemorrhages.

The results of these experiments may be summarized as follows:—

All the guinea pigs (excepted) fed on only bran and heated path died of scurvy in an average of less than forty days. All the guinea pigs fed on bran and heated milk plus I c.c. of hatched mice juice, died of scurvy in an average of rather more than fifty days. The same remark applies to all the guinea pigs fed on bran and heated milk plus I c.c. of Supply and Transport mice juice (one died still). All the guinea pigs fed on bran and heated milk which was given freshly prepared pure hatched mice juice, lived at least twenty days, and two of these were still alive and well on the eighty-fourth day. Although two of the four guinea pigs in this group died in twenty days neither of these showed signs of scurvy. The results of those treated with pure and Supply and Transport mice juice (one day old) are indefinite and the experiment should be repeated.

The conclusions to be drawn are as follows. Whilst I c.c. of freshly prepared mice juice appears to prevent scurvy in the guinea pigs fed on a diet free from anti-scurvics, whereas a smaller quantity of the hatched mice of the Supply and Transport (one year old) and of that supplied by the Naval Depot (presumably some months old) is with doubt as much, pure appears to have no effect in preventing scurvy.

There is, I think, very strong evidence that the hatched mice juice is of little or no value as an anti-scurvics.

Major Hambrecht thought that the best pigs might have caused a certain amount of contamination, but was of the opinion that probably no good result would be obtained by this method of selection.

Some writing, if available, I have read with much interest on account of the results of similar experiments carried out by Dr Clark, E. M. House and R. E. Wilson. Their conclusions coincided with those of Major Hambrecht, except in my view, directly, inasmuch from the use of fresh bone grease. It is interesting to know that they found that the pigs of the fresh bone from the West Indies was of little value, whereas Major Hambrecht gave to the animals, over the fresh bone of the East Indies was of considerable value. Major Charles House and Mackinnon, however, state that the bones with which they experimented were several weeks old. Those used by Major Hambrecht were fresh.

It would appear from the foregoing observations that there must be a considerable deficiency of the vitamin content in the diet supplied to the pigs, compared to the Purina diet and I venture to suggest that the following changes would be beneficial—

(1) Meat and bone meal when possible should be supplied on a more liberal scale. Attention should also be paid to the cooking, as meat loses practically all its anti-scorbutic property if steamed or just boiled.

(2) Bone meal—There does not appear to be any anti-scorbutic value in bone, whether the grease is included or not.

(3) Biscuit.—The above remarks apply also to biscuits. Major Glegg and Dr Cargill have published a report on the anti-scorbutic vitamin content of three kinds of biscuit. The kinds of biscuit were specially prepared, being made of flour in which the embryos of wheat grains had been killed in varying proportions, viz. one variety of biscuit contained 5 per cent. embryos, the second 10 per cent., and the third 25 per cent. They concluded that animals fed strongly recommending the variety containing 25 per cent. embryos. This biscuit was supplied to the troops by the Delta Division Camp, by order of the Q.M.G. (Singapore). Another biscuit of value for pig trials of ground nut meal prepared by Harcourtough in Bombay is owing to a formula by Dr. Macdonald Wallis.

(4) *Vegetables and Fruit*.—The more fresh vegetables supplied the better, with a large supply of fruit all the year round would be advantageous.

(5) *Feed*.—Whenever there is a shortage of fresh vegetables and fruit, pasture (matured grass and lucerne hay) should be used, after being treated in the following manner. Place the grass or lucerne in a strong sack. Keep this for six hours (with occasional stirring) in a trough of

(1) Clark, E. M. House and R. E. Wilson. The vitamin content and anti-scorbutic properties in bone and marrow, together with some new facts and some old discrepancies concerning this point in the literature of Harvey. *Lancet* November 20 1940.

(2) E. M. House and R. E. Wilson. Report on the anti-scorbutic vitamin content of pig meal made of whole wheat. *Report of Medical Research* vol. 1, part 2 July 1938.

... .. (1) A large quantity of ... .. (2) The ... .. (3) The ... .. (4) The ... .. (5) The ... .. (6) The ... .. (7) The ... .. (8) The ... .. (9) The ... .. (10) The ... .. (11) The ... .. (12) The ... .. (13) The ... .. (14) The ... .. (15) The ... .. (16) The ... .. (17) The ... .. (18) The ... .. (19) The ... .. (20) The ... .. (21) The ... .. (22) The ... .. (23) The ... .. (24) The ... .. (25) The ... .. (26) The ... .. (27) The ... .. (28) The ... .. (29) The ... .. (30) The ... .. (31) The ... .. (32) The ... .. (33) The ... .. (34) The ... .. (35) The ... .. (36) The ... .. (37) The ... .. (38) The ... .. (39) The ... .. (40) The ... .. (41) The ... .. (42) The ... .. (43) The ... .. (44) The ... .. (45) The ... .. (46) The ... .. (47) The ... .. (48) The ... .. (49) The ... .. (50) The ... .. (51) The ... .. (52) The ... .. (53) The ... .. (54) The ... .. (55) The ... .. (56) The ... .. (57) The ... .. (58) The ... .. (59) The ... .. (60) The ... .. (61) The ... .. (62) The ... .. (63) The ... .. (64) The ... .. (65) The ... .. (66) The ... .. (67) The ... .. (68) The ... .. (69) The ... .. (70) The ... .. (71) The ... .. (72) The ... .. (73) The ... .. (74) The ... .. (75) The ... .. (76) The ... .. (77) The ... .. (78) The ... .. (79) The ... .. (80) The ... .. (81) The ... .. (82) The ... .. (83) The ... .. (84) The ... .. (85) The ... .. (86) The ... .. (87) The ... .. (88) The ... .. (89) The ... .. (90) The ... .. (91) The ... .. (92) The ... .. (93) The ... .. (94) The ... .. (95) The ... .. (96) The ... .. (97) The ... .. (98) The ... .. (99) The ... .. (100) The ... ..

In connection with this subject, Major Gray, I.M.S., is of opinion that ... ..

(1) Some peas—a delicate, fine pea, or the pea of fresh beans should be supplied, and the herbage would be much more palatable on hay if it were served with it, as bean peas and tepid water is an unpalatable mixture.

(2) Hay—This ration should be replaced in accordance with my previous remarks.

(3) Eggs—An article of diet strongly recommended by Clark, Hume and Mackinnon and Major Gray, I.M.S.,—compensates with peas and (where possible) the addition of fresh vegetables makes a palatable diet of much anti-scurbic value.

(4) Dried eggs are expensive, but of considerable use.

(5) Hay—This should be of the unimpaired variety.

I am much indebted to Major Kirkwood, I.M.S., for details of the experiments he carried out in connection with the use of bean peas as an anti-scurbic. I remember that his results are very practical and conclusive. I also must thank Major G. D. W. Gray, O.B.E., I.M.S., for having so kindly supplied me with details of the diet ration supplied to I.M. troops in Manipone (which particulars are given in the appended note).—

Ration supplied daily to I.M. troops serving in the Burma Gulf.—

(1) Bread 15 oz. and more may be had in requisition.

(2) Meat (Fresh) 1 lb. (specially selected) Sheep killed on board on the day of issue owing to climate. Beef occasionally when a small supply can be obtained.

\* I. D. W. Gray. "The Scurvy Supply of the British in the Burma Gulf." *Journal of the Royal Society of Medicine*, vol. 1, April 1907.

# 206 *A Suggested Improved Diet for the West Indian Soldier*

(14) Meat. (Previously) 1 lb. mutton two days in three when fresh meat is not available.

(15) Salt. Pork. 1 lb. per man once one day in three when fresh meat is not available.

(16) Vegetables and Potatoes. 1 lb. per man, except on preserved meat or salt pork days when only ½ lb. is served. Potatoes can be obtained only in Jamaica or Barbados. Large quantities cannot be taken on board owing to the difficulty of getting enough space for them. Hence a variety provided when the ship is at sea.

(17) Onions. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(18) Turnips. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(19) Beans. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(20) Rice. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(21) Tea. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(22) Sugar. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(23) Butter. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(24) Eggs. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(25) Fruit. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(26) Wine. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(27) Beer. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(28) Spirits. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(29) Cider. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(30) Pudding. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(31) Custard. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(32) Jam. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(33) Marmalade. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(34) Pickles. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(35) Ketchup. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(36) Mustard. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(37) Vinegar. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(38) Oil. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(39) Soap. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(40) Candles. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(41) Matches. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(42) Paper. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(43) Ink. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(44) Pen. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(45) Quill. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(46) Seal. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(47) Stamp. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(48) Ribbon. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(49) Thread. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

(50) Needle. 1 lb. per man on preserved meat days only, but may be had on any day when space allows on vegetable days. It is rarely required by soldiers or sailors.

## NOTES

DEPARTMENT OF AGRICULTURE, U. S. GEOLOGICAL SURVEY, WASHINGTON, D. C.

It is years ago I published a note that seemed to them conclusively, if it be such important, antiscorbutic food was lightly cooked meat. Oranges, juice and potatoes have little or no real nutritive value, and even of such may have some causal relationship.

Directly the details of the case are as follows: My son, aged 8 was found to have spongy gums. He had been fed from birth on pastured milk and later fish and potatoes mixed with a small quantity of green vegetables and a daily ration of orange juice in preserved form. Very little meat was given. An enormous amount of salt was considered to have been given with the food. He was well in a few days afterwards scraped and had been administered and the allowance of salt cut down.

The following passages to be taken from the 'Life of Captain James Cook. He was a light on the successful experiments adopted on these days.

'On the 'Blackmore' at Malacca on the way out two of the men, a sailor and a surgeon, suffered together in such a manner as to render themselves of little use. Cook knew from his own experience how important it was to prevent the sailors from ever getting a footlock on board. He had only five cases of scurvy during the voyage, August 1780 to July 29, 1781. November 21 1782 sailed from the Cape. Large quantities of live stock perished. Towards the end of the voyage began to show themselves. Cook's men were never out of all hands regularly. One man who was in a great worse state than any of the others was treated with the rule of lemons and oranges in water of pills made from these fruits, but without effect though he recovered himself from the worst. 'Went on a diet of meat, and even on the last voyage it has been the custom to give the men an allowance of meat on the West Coast.

In the same book occurs the following passage: "Land, Ovidio, on a letter dated from 1781 B. Frankfort, Baden, writes 'We have also been very well supplied with frozen beef from London which keeps our men healthy while they continue in port, but the men by now begin to pull us down in great numbers upon our going to sea in the spring.

White writes 'Some of the symptoms of this may have been or have been cured by sea air and sea water. There is not an ounce of fresh beef or mutton on board for '.

Another interesting passage in the book relates to the consumption of salt. 'The allowance of salt beef and pork was changed from, nearly the beginning of the voyage and the usual custom of the sailors mixing the salt beef fat with the stew was strictly forbidden. Salt water and cheese was stopped on leaving England and throughout the voyage rum was served in place of the salt meat.

by skin grafts (Sims, 1937) (unusually healthy growing boy) at a time when almost unoperated cases are at least on the verge of a fatal final relapse.

The following patient (Case 2) was operated on many times (Sims, 1937) and the following observations are noted:

11-12 years old (F.H. 1, age 12). On March 25, 1937, at age 11 1/2, boy with a somewhat large nose, almost the same width, which appeared unusually prominent for his age (under 10 years) and fairly due to a hypertrophy of the posterior 1/2 of nose. By April 1, 1937 these lesions had practically healed, but he complained of pain behind the right nose point which was kept up at the most time postoperative hypertrophy was, even about the lower border. Some bleeding from the gums was then noted, they could not be called spangly but sharp, was pyorrheal character. On inspection a few of the teeth that he did not, his gums hypertrophied. Before he was called up he had been in the habit of eating too much applesauce, whereas on board it is usually overcooked. He was exceptionally fond of milk.



Fig. 1



Fig. 2

The W.H.O. of the hospital to which he was sent was (Sims, 1937) as sent out the following report:—

Case 21

H. C. Gage, N.M.S., is still under treatment here. The lesions of the nose is not clear. Some whitening of the skin behind the nostrils, on the columella, suggested the rhinophyma, also on the chest and face. Other signs of rhinophyma are white of abdominal pig; the head was covered with a small leucoderma. He has been under medical treatment of rhinophyma, but this has not prevented the whitening of the skin. The distribution of the spots (rhinophyma, those appearing on the face) and post-pig, the rhinophyma, the rhinophyma suggests the rhinophyma. I have not seen the rhinophyma except in children or adolescents. It seems likely to be a case of some obscure infection, probably digestive tract. The nose is broad and has been enlarged and the great enlargement. The treatment had any effect on the progress in that region. Since the teeth were restored



there has been no further outcrop of apples though this may well be but uncertain. The blood count and sediment are normal. Should all go well he will be fit to leave hospital in about three weeks.

On Sept. 14, April 9. On April 9 completed a 24-hour fast on the periods of the eight experimental periods. There was a three-day feeding about the size of a normal. Some subcutaneous hemorrhages appeared on the lower third of the leg. The gums were found to be spungy. The diagnosis of scurvy was established at this time. The subcutaneous hemorrhages appeared. I am in no way to hospital for routine routine when the condition was diagnosed probable scurvy.

Delivery room April 22. On the 22nd day of July 9 completed a 24-hour fast and gave about 100 cc. of water. The left side was swollen and there was a slight up the leg. The temperature was normal the next day. Two days later a large erythema was noticed on the right side of the leg. The gums were found to be spungy. He informed me that he did not like vegetables. He was put on light-colored meat, cooked green vegetables and brown. Two days later he returned to duty.

In spite of the notes from the hospital in which the first two cases were sent, I have not the slightest doubt that there were cases of scurvy. Super conditions alone are known to cause purple lesions, and of course it is possible that the first case may have had its primary origin in the peripheral circulation. Spungy gums are not always a marked feature in scurvy, but perhaps in the days gone by, when first lesions were an actual fact, the bleeding of the gums would be the first symptoms to be noticed.

The explanation of the occurrence of scurvy in modern times on board ship is in my opinion that the meat is rapidly very much overcooked. The reason here is that the meat is often very ripe of richness in the meat and used their meat back to the policy of it appears on that condition. This is however a mistaken notion in many cases because that there meat is overcooked and that, quite rightly, that the nutrient value has thereby been lowered. The absence of sufficient green food and fresh fruit is another factor, but although green food has obviously a higher anti-scurvy value than meat, the whole must, I think, have been drawn up according to weight and percentages, whereas half a pound of meat is much more readily taken and digested than half a pound of vegetables. Here I run in a better anti-scurvy, as that the eating of a pound of apples is quite a pleasant performance, but there are not plentiful sources. Another factor also comes in viz., 1 lb. of vegetables is supplied by the passengers and there is usually supplied in the form of potatoes, which have according to clinical experience no anti-scurvy value. Green vegetables on the other hand are supplied by the outside and are subject to the laws of supply and demand. In many cases the demand is not made by the crew either. A compulsory ration of green vegetables there would most likely be a remedy, but the question is rather outside the scope of the present article. The enormous quantity of salt taken with the food is now possibly only an accidental factor, but formerly in the days of salt preservation, may have been of some importance. Captain Cook's opinion is here thought of as important evidence. The question whether it is a preponderant cause might be considered.

In conclusion I should like to speak in the incompleteness of this

article owing to being written from a shop where there are no facilities for obtaining books of reference. I would suggest that there be facilities furnished for obtaining references with perhaps a retired medical officer on duty, or preferably the foundation of a central library at Madras with a reference exchange, should there be such an arrangement made. A register with similar dates to vegetables in civil hospitals would be a great improvement, and perhaps then we might be able to follow our men better.

While writing the above a query from the Editor with reference to my remarks on the anti-scorbutic value of potatoes, caused me to obtain a copy of Clark and Hume's<sup>1</sup> interesting report on these experiments with reference to herring and scurvy. Their experiments appear to show that—

- (1) *Herr and potatoes have equal anti-scorbutic values.*

*Neither does great antiscorbutic value.* At least 1 lb. of potatoes daily seems to be necessary. I think the explanation of this is that their experiments were carried out on guinea pigs (hedgehog animals). I would suggest that hedgehog animals get their antiscorbutic substance most readily from vegetables but a corresponding amount from meat, and probably an animal gets his substance most readily from milk. Although experiments with guinea pigs do not demonstrate that milk contains any anti-scorbutic substance, nevertheless infants do not develop scurvy during the first year of life.

- (2) *Cabbage juice has a high anti-scorbutic value.*

My favourable opinion of the anti-scorbutic value of cabbage has on two occasions been lately shaken. One of the first deaths scurbutic that I signed was for a case of infantile scurvy in which I was giving no orange daily, the chief complaint was the one quoted above. Finally had I given half a pint of orange juice—weighing a little over half a pound, better results might have been obtained. A tumblerful of orange juice would only be obtained from many a sugar.

- (3) *The anti-scorbutic substance is easily destroyed by moisture heat.*

This confirms my remarks on the overcooking of meat.

- (4) *Dead peas have no anti-scorbutic value but germinated pulses are a substitute for fresh vegetables.*

This does not appear to be practicable for general adoption, however excellent for an outstation. It is however a most important discovery on account of the large amount of dead peas that are consumed on board.

- (5) *If any juice is used at all as an anti-scorbutic the value should be a liberal one—at least 1 oz. daily.*

The above advances to 1/2 oz. Since my lecture to prevent an over worry with orange juice I have not heard more relied on, but juice. In the quantity supplied it is surely a pleasant summer drink, cooling more.

The whole article by Clark and Hume should be read, as the extracts given here do not do justice to its importance.

<sup>1</sup> *Trans. Roy. Soc. Med. and Hyg. vol. 9, No. 6.*

REPORT ON THE BACTERIOLOGICAL LABORATORY SECTION  
 UNITED STATES HOSPITAL, MARINA DEL REY AND ANNEX

By WILLIAM L. BARTHOLOMEW, M. D., CLINICAL BACTERIOLOGIST.

In two papers it is proposed to consider only the following:—

- (1) Identification of the typhoid group.
- (2) Widal reaction.
- (3) Anti-typhoid vaccine.
- (4) Dysentery.
- (5) Cholera.
- (6) Wassermann test for syphilis.
- (7) Complement deviation in gonorrhea.
- (8) Bacteriological examination of water.

TYPHOID FEVER.

Results of the typhoid group were tabulated as follows:—

	Total	From blood	From stool	From urine	From sputum	From other sources
Blood cultures	41	25	4	—	1	11
Urine for diagnosis	145	5	1	2	—	137
Urine for diagnosis	55	—	—	—	—	55
Urine for diagnosis	121	12	—	1	—	108
Urine for diagnosis	119	1	—	—	1	117
Dysentery	1	—	—	—	1	—

**Blood Culture.**—The technique was as follows: 5 c.c. of blood from a vein were placed in 500 c.c. of bile broth, and 1 c.c. of blood in 500 c.c. of nutrient broth.

There can be no doubt that blood culture offers the earliest, the most exact and the most certain method of diagnosing infections of the typhoid group. The above cultures were done on cases in which the duration of the disease at the time of culture varied from a few days to a month. In one case only was the culture negative, and the disease afterwards proved to be of typhoid origin. In this case the disease was of four weeks' duration. Positive results were obtained when the Widal was positive in dilution 1:2000 and 1:500.

**Stool and Urine.**—These were plated out on MacConkey's medium. No synthesis of enrichment was used. As a general rule the examination of feces and urine was not relied upon for diagnosis, nor were the results of proved infections examined, except for clearance. The great majority of these examined were from cases of pyrexia which subsequently proved to be of other than typhoid origin.

<sup>1</sup> Received for publication, February 2, 1915.

*Bacilli Isolated*.—All the strains of *Bacillus typhosus*, *B. paratyphosus* A, and *B. paratyphosus* B given characteristic sugar reactions and agglutinated in full size with their respective sera.

*Strained Bacilli*.—This bacillus, which for the sake of convenience may be termed *Bacillus* 'Q' was isolated from four cases as follows: (I) In two cases it was obtained in pure culture from the blood. (II) In one case it was obtained in pure culture from the blood and the urine. In that case it was the infecting agent in an acute cystitis. (III) In one case it was isolated in conjunction with *Staphylococcus aureus* and *B. pyocyaneus* from the pus of an abscess. In this case it was also isolated from the spleen post mortem.

The bacillus was mobile and Gram-negative. Its growth upon different media resembled that of bacilli of the typhoid group. Its action on media typhoid was similar to that of the paratyphoid organisms but it failed to ferment dextrose even after many subcultures. Injected intraperitoneally, it proved fatal to a guinea-pig on twelve days. Two small doses were given. The organism in the case of the first dose was heated at 56° C. for half an hour. The organism was recovered in pure culture from the blood, spleen and peritoneal fluid. It again failed to ferment dextrose. Its agglutination, which was unaffected by calculation of passage through a guinea-pig, is shown in the following table. The polymorph serum referred to was obtained from one of the mice in the twentieth day of disease. The highest positive, and the lowest negative dilution is shown in each case.

In an experiment with paratyphosus B serum the organism agglutinated. *B. aerophilus*

	Standard B. T. serum	Heated at 56° C. serum	Heated at 56° C. serum	Reactive dilution (1/2)
<i>B. typhosus</i> serum (3 mice fatal tail test 1/5000)	+1/30000	—	—	—1/100
<i>B. paratyphosus</i> (Laver) Institute serum 1/5000	—	+1/15000	—	—1/100
<i>B. paratyphosus</i> (Laver) Institute serum 1/5000	—	—	+1/30000	+1/4000
<i>B. paratyphosus</i> obtained with <i>B. paratyphosus</i>	—	—	+1/100	+1/100
<i>B. paratyphosus</i> obtained with <i>Bacillus</i> 'Q'	—	—	+1/50000	—1/100
Polymorph serum	+1/10	+1/10	+1/10	+1/1000
Serum from fatal child guinea pig	+1/10	+1/10	+1/10	+1/100

#### WOUND TREATMENT

No seal was not obtainable. best local treatment prepared after Desprez's method was used. Boric acid. Saline solution to test about six weeks was made. placed in sterile stoppered bottles, and stored in ice box

about 100 grains of dry, clean quartz per gallon, so that a constant amount of sandstone is furnished to the apparatus without the drag and consequent tilting of the carbonate.

In operation with phosphoric acid, certain samples of sandstone became cemented to such things and it was difficult that the substitution of the gas test vehicle, and for 0.1 per cent, borax might prove more efficient in preserving the mobility of the emulsion. This was quite true, but it was found that the carbonate destroyed the applicability of the emulsion within a short time.

equipment



# Deaerated Water

## Known Solutions

0.1 mole of sodium + 8	Grains of sodium	1 - 1 1/2
2 - 100	1 - 100	1 - 100
2 - 200	1 - 200	1 - 200
2 - 300	1 - 300	1 - 300
2 - 400	1 - 400	1 - 400
2 - 500	1 - 500	1 - 500
2 - 600	1 - 600	1 - 600
2 - 700	1 - 700	1 - 700
2 - 800	1 - 800	1 - 800
2 - 900	1 - 900	1 - 900
2 - 1000	1 - 1000	1 - 1000

Deaerated Water (1)	Grains of sodium	Grains of carbon	Deaerated Water (2)	Grains of sodium	Grains of carbon
1 - 100	0	0.0	1 - 1000	0	0.0
1 - 200	0	0.0	1 - 2000	0	0.0
1 - 300	0	0.0	1 - 3000	0	0.0
1 - 400	0	0.0	1 - 4000	0	0.0
1 - 500	0	0.0	1 - 5000	0	0.0
1 - 600	0	0.0	1 - 6000	0	0.0
1 - 700	0	0.0	1 - 7000	0	0.0
1 - 800	0	0.0	1 - 8000	0	0.0
1 - 900	0	0.0	1 - 9000	0	0.0
1 - 1000	0	0.0	1 - 10000	0	0.0
1 - 1100	10	1.0	1 - 11000	10	1.0
1 - 1200	20	2.0	1 - 12000	20	2.0
1 - 1300	30	3.0	1 - 13000	30	3.0
1 - 1400	40	4.0	1 - 14000	40	4.0
1 - 1500	50	5.0	1 - 15000	50	5.0
1 - 1600	60	6.0	1 - 16000	60	6.0
1 - 1700	70	7.0	1 - 17000	70	7.0
1 - 1800	80	8.0	1 - 18000	80	8.0
1 - 1900	90	9.0	1 - 19000	90	9.0
1 - 2000	100	10.0	1 - 20000	100	10.0

By substituting known solutions C<sub>1</sub> for C, D<sub>1</sub> for D, E<sub>1</sub> for E, the corresponding solutions can be multiplied by 1.00

Diets were made identical as far as possible by means of a Wright's galvanometer apparatus connected with an Eberbach balance. They were placed in a water bath at 37° C. before the tubes being put on the rack. Readings were taken at the end of two hours, in the case of typical conditions and at the end of four hours, in case of dysentery conditions. As the same reactions of these papers, and the same methods of dilution were used, the work figures in a series of tests was reduced to a minimum.

**In typhoid.**—The diagnosis of the typhoid group as indicated indirectly by a series of tests at short intervals was found to be unsatisfactory. The more characteristic features of these tests would appear to be the decrease in the agglutination of the infecting organism. This however occurs at a time when the majority of cases would yield a positive blood culture. Cases in which the agglutination produced by the infecting organism reaches a high level can within a certain period be diagnosed by the rapid fall of their agglutination. The majority of cases investigated in these tests were found to give definitely results.

**In dysentery.**—Agglutination tests were not done as a rule in a case of dysentery, the majority of which were attended with active symptoms. Tests were done on twenty-five cases of proved *Flexera* infection in the nineteenth day of the disease. The number of cases agglutinating in the following dilutions is shown:—

= 1:50	= 1:100	= 1:200	= 1:400	= 1:800	= 1:1,000	= 1:5,000
5	21	18	15	15	7	0

**In *M. morganii* Fever.**—The appearance of agglutination was in early, and so marked, that a diagnosis could generally be arrived at by agglutination tests before the result of blood culture was known. Of twenty-five cases which gave a positive result, twenty-two showed agglutination in dilutions varying from 1:1000 to 1:10,000. Of the three cases which failed to agglutinate on 1:1000 two gave previous history of *M. morganii* fever.

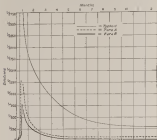
#### ANALYTICAL RESULTS.

The amount of T. A. B. vaccine made during 1915 and 1916 was 50,000 c.c. All strains used in the preparation of the vaccine were isolated from the blood, or spleen, of cases which had contracted the disease in the Military Institute area. Five strains of each organism were employed. Cultures were grown on agar and emulsified with normal saline 0.1 per cent of carbolic acid being added. At first the vaccine was standardized to contain 1,000 million *S. aggl.*, 500 million *S. parv.*, and 500 million *S. parv. B* to the c.c. Two suspensions (0.5 and 1.0 c.c.) were given, with an interval of ten days. Recently the strength of *S. parv. A* and *S. parv. B* has been increased to 750 million per c.c., and the interval between the injections, to *agglutination* days.

It was advised that all men vaccinated should stand off duty for forty

nights after first inoculation and for twenty-four hours after the second. In the majority of cases the reaction was slight or nil. In some cases, especially in children, the reaction was more marked. In no case was the reaction of a violent or alarming nature.

**Agglutination Produced.**—A series of agglutination tests were done on twenty cases over a period of twelve months. These cases were inoculated with the first strength of vaccine two experiments being given with a ten-day interval. The same results are shown in the following chart.



Three cases showed agglutination to B type sera in dilution 1/16000 ten days after first inoculation. One case failed to show any agglutination to B type sera even after a second inoculation reaction even showed agglutination at the end of twelve months. All cases showed agglutination to B para A and B para B. The highest positive dilution in each case being 1/16000. Over 75 per cent of cases showed agglutination to all three organisms at the end of twelve months.

As has been pointed out by several workers the second inoculation seems to be without effect on the further production of agglutinins, but it has a sustaining effect on the agglutinins produced by the first inoculation.

It is noticeable that in cases recorded, even two years previously, the agglutinins tended to remain at a higher level than in those recorded for the first time.

#### DIAGNOSIS

Cases of dysentery were received from all parts of the Mediterranean. The duration of illness prior to examination of the stools, varied from a few days to a few months. The results are as tabulated below:—

A represents stools containing blood or mucus.

B represents stools containing no blood or mucus, but dangerous.

C represents stools containing no blood or mucus, but dangerous.

	A	B	C	Total
Number examined	251	477	423	1151
Flexner's group	47	6	6	59
B group	57	—	—	57
C. bacilliformis	17	—	—	17
C. dysenteriae type 1	—	4	2	6
C. coli	1	1	—	2
Shigellae	66	66	66	198
A coli and type 1	1	55	6	62
Acet. in subacetic acid and type 1	2	16	7	25
Tommanow	—	5	7	12
C. flexner bacilliformis	1	5	6	12
C. flexner bacilliformis dysenter	1	8	2	11
C. dysenteriae flexner 1	—	2	—	2
C. dysenteriae flexner 1	—	2	—	2

**Flexner's group**—Sixty-nine organisms of this group were isolated. Only one was lactose fermenter, six isolated as agglutinins with Flexner Y serum (Leary Institute) and gave weakly without gas with glucose, mannite and raffinose. The six also were only tested on malachite and were not tested on subacetic. As a general rule they fall into two classes:—

(a) Flexner typical—those that agglutinated to full titre with Flexner Y serum and gave weakly without gas with glucose, mannite, glucose, mannite and raffinose, dysenter and malachite. All organisms of this group gave acid on peptone water after five days.

(b) Non Y—those that agglutinated with Flexner Y serum, but to a less extent than previous group, and gave acid without gas with glucose, mannite and raffinose (slight). Indol formation was variable.

Organisms of the Flexner Y group were isolated from six cases in which the stools contained no blood or mucus. In three of these cases, there was no question of dysentery, and it is a coincidence that in each case the patient was suffering from haematologically proved paratyphoid A. In one case of mild chronic dysentery of six months' duration, the organism



was isolated in almost pure culture from tissue put received on retail examinations. The serum of the patient showed marked agglutination to organisms isolated from stools received for diagnosis; the organism was isolated on no occasion. In no case was it found to persist longer than two months from the onset of the disease.

**Shigella flexa**.—This organism was isolated from *Shigerson* cases. In no case the disease was over one month's standing. It has never been isolated from a stool which did not contain blood or mucus and mucosally.

**Agglutination**.—Of 200 pathological stools examined, only nine, or nearly 5 per cent, were negative, mucosagally and culturally. Allowing for the fact that the stools of several cases were examined on more than one occasion the percentage of cases in which the findings were negative was 14 per cent. Some of these negative findings may be explained as follows: (1) In four cases stool, resembling bacillary dysentery, mucus, mucosally and mucosagally, was substituted by stools of mucosagous appearance of guai and N. A. B., (2) in several cases the disease was of such duration that the original infecting agent had probably died out.

In a certain number of cases of acute colitis of recent onset the stools on culture showed a large number of "suspect" colonies. These organisms, however, failed to conform to any of the above mentioned types and may be divided into the following classes:—

(a) Those that give the sugar reactions of the Flexner Y group, but failed to agglutinate with Flexner Y serum isolated from an case.

(b) Organisms of the Shiga type, but giving weakly with *Shigerson*, showing mild fermentation, and failing to agglutinate with *Shiga* serum. This type was isolated from four cases. In no case did the patient's serum show any power of agglutinating the organism.

In connection with the latter type of bacillus it may be mentioned that a bacillus of the Shiga type, but giving rapid, and failing to agglutinate with *Shiga* serum (patient with *Shigerson* not stated), has been described (a) by Park and Curry in 1911 as the cause of an epidemic of dysentery near New York City (b) under the name of *Shigella sonnei* by Meyer F. W. Andrews (*Lancet*, April 28, 1912).

In one case an organism was isolated which conformed with the typical Flexner bacillus but failed to agglutinate with Flexner Y serum, and showed late (pink disc) weakly with *Shiga*. In this case the patient's serum showed definite power of agglutinating the bacillus isolated. Super reactions and agglutinations were manifested by antibodies isolated contemporaneously it was non-pathogenic, in a guinea pig. This type of bacillus resembles closely the bacillus described by Meyer F. W. Andrews under the name of *S. flexa*.

It is noticeable that the cases from which these atypical bacilli were isolated, showed up equally without any specific treatment.

**Bacillary dysentery**.—*Shigella flexa* was more common. *S. sonnei* was present alone in three cases, with *Shiga* once, with Flexner once. It was

designed type of paramecium counterflow system. Initially this system was prepared in a 50 cc. syringe (No. 1000) and in two cases, the abundance of the latter does not represent the total abundance of the tissue, three cases of leishmaniasis and one case of round worm, injected in England before abundance could be compared.

*Leishman and Tricomonas.*—Leishman and trichomonads were present in varying degrees within the tissues examined. There seems to be little doubt that these flagellates represent organisms as capable of producing a chronic and recognizable disease as the first agent. The smears containing flagellates in all of the following fish, the brown of unknowns and trichomonads, the species of *Leishman* and *Tricomonas* are not designated, with several local cases occurred one report the following pages.

*Belgian.*—Two cases (No. 1000) were an Egyptian with an active primary and recurrent infection. He collected a specimen of a natural infection, of African origin, and at several points in the story.

#### MATERIAL

Number of fish examined	100
Subcutaneous parasites present in	124
Organic lesions parasites present in	64
Quarantine parasites present in	0

*Technique.*—In all but one instance, three *dehemospherozoan* films were examined in each case; the following technique was used:—

Two large drops of blood were spread on slide to form a smear of the maximum thickness that would permit of blood drying without cracking and cracking. These smears were placed on a level surface till dry. They were *dehemospherozoan* with three's solution which in turn, was washed off with absolute alcohol. The resultant film was dried and stained with Leishman.

Several other methods of concentrating parasites were used, but this was found to be the most satisfactory. Methods involving the use of the centrifuge were found to be too cumbersome for routine work. This method has the following advantages:—

- (a) It gives a fairly fine and a concentration of twenty to fifty according to the thickness of material used.
- (b) All parasites including small flagellates are preserved and can be recognized.
- (c) The leishmaniasis are preserved and help to indicate the staining of the film.
- (d) A large number of smears can be dealt with at the same time.

It may be mentioned in passing that smears *dehemospherozoan* as above, and stained with silver (Fitch's method) are excellent for demonstrating the spore of *releasing* liver.

It is of interest to note that several cases of *releasing* of unknown origin (possibly *releasing*) in which a blood film in the stomach and intestine, PML, showed subcutaneous parasites only, none is illustrated in the

spring and summer, 1915, blood film than showing leucocytes within peritoneal fluid. In these cases there was no possibility of re-infection.

#### STREPTOCOCCUS WEISSBACHTII TEST

Using the technique recommended by Feller and McIntosh over 1,000 tests were done. A few minor unimportant alterations were necessary, to adapt the technique to local conditions—e.g., the substitution of goat milk and goat mackerel for sheep milk. As far as can be stated from cases under treatment in hospital, the results were well checked and reliable.

With regard to the antigen it was found that, when kept over three months, it became more non-complementary and unfit for working on technique employed. One antigen for no apparent reason gave unreliable results and had to be discarded. In this case the heart was obtained from a case of influenza and leucobacteremia.

It was noted that the serum of guinea pigs, bred locally, had a higher and more consistent complement value than that of pigs imported from England.

#### CHARACTERISTICS IN GUINEA PIGS

Using a slight modification of the above technique, a number of tests were done on cases of acute and chronic gonorrhoea (which gonorrhoeal antigen (Duke David) was used throughout). From September 1915, to October 1915 1,706 tests were done on 540 cases with the following results:—

Strong positive (+ + + +)	455
Partial (+ + +)	554
Weak positive (+ +) and (+)	411
Negative	286

**Acute Gonorrhoea.**—So long as the disease was confined to the anterior system, a negative or weak positive result was obtained. As soon as the case, with columns of the points, the reaction was more marked, but a strong positive was exceptional. In chronic cases, the reaction was generally negative, even though cultured bacteria were present.

**Posterior Discharge.**—The onset of posterior discharge was generally followed, within a week, by a strong positive reaction. As symptoms abated under treatment, and disease became more chronic the reaction became less marked, and it would seem that the gonococcus may be latent in the posterior urethra with a negative result.

**Cyritis.**—As for posterior urethritis.

**Prostatitis and Proctitis.**—As these complications are extensions of a posterior urethritis, the reaction in most cases was strongly positive. It was, however, more persistent. The reaction in vesicles or proctitis, of gonorrhoeal origin, even though all acute symptoms had subsided, was generally marked by a strong positive reaction. In several cases the chronic extension of pus from an infected prostate, or distended vesicle, changed a strong positive to a weak positive within a week or ten days.

*Epidemics and Outlets*.—In these cases the reaction was more marked and tended to persist longer than in collections of any other portion of the seroagglutiny trial. It was not uncommon for a + + + or a + + reaction to persist for several months after all specimens had subsided.

*Generalized Rheumatism*.—Cases of acute arthritis occurring in the course of an acute medical infection, generally gave a strong positive reaction, but the arthral reactions would also account for this. In cases of chronic gonorrheal arthritis in which the arthral reaction was transient only positive and in several cases, weak positive, results were obtained.

*Acute Typhoid*.—In the majority of cases, the reaction was unaffected by the injection of stock gonococcal vaccine. In some chronic cases which had previously given a negative result, a strong local and general reaction to the vaccine was followed by a transient positive result (confusing).—From the above results it would seem:

(1) That complement fixation is not so well reacted to specimens as in some other diseases, e.g., syphilis, infections of the typhoid group, and *Melioidosis* fever.

(2) That it depends more upon the collection of gonococcal products and absorption of tests than on the mere presence of the gonococcus.

(3) That a negative result cannot be accepted by itself as a test for cure but should be used in conjunction with clinical, serological and cultural methods.

As the places of origin of infection in the cases tested include England, France, Gibraltar & Africa, Italy, Greece, Malta, Egypt, India, Colombia, Hongkong and Australia it is inferred that a more widely polyvalent antigen would give more definite results. But progress of work did not permit of this.

It was included in *European Laboratory E. J. Bulletin* as change of venereal wards for the selection of cases, and the interpretation of results.

Has been infected	Number samples	Number reacted	Number samples
<i>E. coli communis</i>	4	<i>E. coli</i> 39	3
<i>E. coli paratyphi</i>	9	" 65	3
<i>E. coli</i>	1	" 67	1
<i>E. coli saprophyticus</i>	7	" 74	3
<i>E. cloacae</i>	5	" 74	4
<i>E. aerogenes</i>	2	" 80	1
<i>E. subsp. flex</i>	1	" 100	3
<i>E. coli flex</i>	1	" 101	3
<i>E. coli flex</i>	1	" 102	3
<i>E. coli flex</i>	1	" 103	3
<i>E. coli flex</i>	1	" 104	3
<i>E. coli flex</i>	1	" 105	3
<i>E. coli flex</i>	1	" 106	3
<i>E. coli flex</i>	1	" 107	3
<i>E. coli flex</i>	1	" 108	3
<i>E. coli flex</i>	1	" 109	3
<i>E. coli flex</i>	1	" 110	3
<i>E. coli flex</i>	1	" 111	3
<i>E. coli flex</i>	1	" 112	3
<i>E. coli flex</i>	1	" 113	3
<i>E. coli flex</i>	1	" 114	3
<i>E. coli flex</i>	1	" 115	3
<i>E. coli flex</i>	1	" 116	3
<i>E. coli flex</i>	1	" 117	3
<i>E. coli flex</i>	1	" 118	3
<i>E. coli flex</i>	1	" 119	3
<i>E. coli flex</i>	1	" 120	3
<i>E. coli flex</i>	1	" 121	3
<i>E. coli flex</i>	1	" 122	3
<i>E. coli flex</i>	1	" 123	3
<i>E. coli flex</i>	1	" 124	3
<i>E. coli flex</i>	1	" 125	3
<i>E. coli flex</i>	1	" 126	3
<i>E. coli flex</i>	1	" 127	3
<i>E. coli flex</i>	1	" 128	3
<i>E. coli flex</i>	1	" 129	3
<i>E. coli flex</i>	1	" 130	3
<i>E. coli flex</i>	1	" 131	3
<i>E. coli flex</i>	1	" 132	3
<i>E. coli flex</i>	1	" 133	3
<i>E. coli flex</i>	1	" 134	3
<i>E. coli flex</i>	1	" 135	3
<i>E. coli flex</i>	1	" 136	3
<i>E. coli flex</i>	1	" 137	3
<i>E. coli flex</i>	1	" 138	3
<i>E. coli flex</i>	1	" 139	3
<i>E. coli flex</i>	1	" 140	3
<i>E. coli flex</i>	1	" 141	3
<i>E. coli flex</i>	1	" 142	3
<i>E. coli flex</i>	1	" 143	3
<i>E. coli flex</i>	1	" 144	3
<i>E. coli flex</i>	1	" 145	3
<i>E. coli flex</i>	1	" 146	3
<i>E. coli flex</i>	1	" 147	3
<i>E. coli flex</i>	1	" 148	3
<i>E. coli flex</i>	1	" 149	3
<i>E. coli flex</i>	1	" 150	3
<i>E. coli flex</i>	1	" 151	3
<i>E. coli flex</i>	1	" 152	3
<i>E. coli flex</i>	1	" 153	3
<i>E. coli flex</i>	1	" 154	3
<i>E. coli flex</i>	1	" 155	3
<i>E. coli flex</i>	1	" 156	3
<i>E. coli flex</i>	1	" 157	3
<i>E. coli flex</i>	1	" 158	3
<i>E. coli flex</i>	1	" 159	3
<i>E. coli flex</i>	1	" 160	3
<i>E. coli flex</i>	1	" 161	3
<i>E. coli flex</i>	1	" 162	3
<i>E. coli flex</i>	1	" 163	3
<i>E. coli flex</i>	1	" 164	3
<i>E. coli flex</i>	1	" 165	3
<i>E. coli flex</i>	1	" 166	3
<i>E. coli flex</i>	1	" 167	3
<i>E. coli flex</i>	1	" 168	3
<i>E. coli flex</i>	1	" 169	3
<i>E. coli flex</i>	1	" 170	3
<i>E. coli flex</i>	1	" 171	3
<i>E. coli flex</i>	1	" 172	3
<i>E. coli flex</i>	1	" 173	3
<i>E. coli flex</i>	1	" 174	3
<i>E. coli flex</i>	1	" 175	3
<i>E. coli flex</i>	1	" 176	3
<i>E. coli flex</i>	1	" 177	3
<i>E. coli flex</i>	1	" 178	3
<i>E. coli flex</i>	1	" 179	3
<i>E. coli flex</i>	1	" 180	3
<i>E. coli flex</i>	1	" 181	3
<i>E. coli flex</i>	1	" 182	3
<i>E. coli flex</i>	1	" 183	3
<i>E. coli flex</i>	1	" 184	3
<i>E. coli flex</i>	1	" 185	3
<i>E. coli flex</i>	1	" 186	3
<i>E. coli flex</i>	1	" 187	3
<i>E. coli flex</i>	1	" 188	3
<i>E. coli flex</i>	1	" 189	3
<i>E. coli flex</i>	1	" 190	3
<i>E. coli flex</i>	1	" 191	3
<i>E. coli flex</i>	1	" 192	3
<i>E. coli flex</i>	1	" 193	3
<i>E. coli flex</i>	1	" 194	3
<i>E. coli flex</i>	1	" 195	3
<i>E. coli flex</i>	1	" 196	3
<i>E. coli flex</i>	1	" 197	3
<i>E. coli flex</i>	1	" 198	3
<i>E. coli flex</i>	1	" 199	3
<i>E. coli flex</i>	1	" 200	3

## BACTERIOLOGICAL EXAMINATION OF WATER

owing to the difficulty of keeping samples of material a few days before they could be forwarded as mounted boxes with sufficient packet material, it was found, as could be understood on samples received from a house outside the island. Thirty-five samples, mostly from taps and rain-water, were examined bacteriologically using the technique recommended by Glazebrook. The purity of the water was estimated on the number and variety of bacteria developing on various growths. A large number of the organisms isolated were unclassified. The preceding table shows the classified organisms isolated with the number of samples in which each was present.

I wish to thank Col. Roy Howard F. B. Holbrook for assistance in carrying out this work and supplying these returns.

I am indebted to Surgeon Captain G. T. Brash, C.M.D. R.N. for permission to publish this report.



was is gleaned from the fact that at the Royal Naval Surgeons' Conference, during 1911-12, after the introduction of the endoscope the operation had been reduced by between 10 and 40 per cent. and this was entirely due to the disappearance of the organic cause.

Notwithstanding the results of reports of international conferences and the conclusions by well known surgeons, an atmosphere of opinion has been established, associated with the progress of acute urethritis. Fortunately I regret I am not able to contribute to it. My own experience points out that we have not made very rapid strides in this direction. I give the estimate, an extensive trial under strict supervision and most favorable surroundings and show for my subjects hardly young adults suffering from their first attack of gonorrhea has failed to show any particular advantage in the employment of these endoscopic measures. Cases of apparent cure have certainly more or less recurred (cases treated solely on low diet and ergosterin in the laboratory) but in this group a continuation was confined them to a further prolonged period of treatment.

The endoscope supplied by the Ministry to naval establishments is the *Arm Operating Endoscope* invented by the Weymouth Firm. It is limited to the examination and treatment of the anterior urethra. Posterior endoscopy is seldom reported in various treatment, whereby all cases of posterior urethritis can be cured with it, in one. The endoscope consists of a series of tubes of various sizes which are inserted into the urethra and the "eye piece" terminates resembling a small revolver, fitted with six diopter lenses attached to a short telescopic handle. In front of this is an adjustable focusing lens, covered by a sliding hood which holds an inflexible guard in front, capable of adjustment by screw action so focus light directly down the centre of the endoscope, tube. Attached to the long handle is a cone of metal which accurately fits the external inlet. Into the side of this cone is attached a small tube to which a rubber bulb is fixed, and which acts as an air bellows for inflating the urethral canal. Another cone is supplied to which the various instruments required for operations can be inserted. When required for inspection only the cone is attached to the urethral tube direct. When required for operating a rubber chamber intervenes between the cone and the tube. This chamber has a constrictor action. When intended for opening stricturement or prolaphe diverticuli or leak removal, positioned by the external tube, leaving the end of the instrument exposed at the urethra. In this way the glands and tubules can be destroyed and waste excretions expelled. The method employed for destroying infected follicles—which are largely responsible to the causation of gleet—is to insert the end of the probe and then pass it through a stick of solid nitrate of silver. The probe is then worked through the mouth and behind of the infected follicles and completely destroys them.

The patient lies on the recumbent position, with his knees well apart,

on a table raised to a convenient height and his legs dangling over an extreme edge, and the operator takes up her position at the foot of the table between the patient's legs. As the room is darkened it can be readily realized that this is rather an awkward position for giving a demonstration in orthoscopy, observing that the operator is obliged to use both hands in manipulating the instrument the confusion being performed by an assistant. To remedy this Meyer Campbell B.A.M.D., has designed a smaller and simpler orthoscope which allows the operator to stand by the patient's side and affords ample room for the beginner's operation. It possesses the additional merit of being considerably cheaper.

It is obvious, before embarking into the mysteries of the rectal mode test of the male urethra, it is essential that one should first be thoroughly conversant with the appearance of normal urethra and no opportunity should be lost in this respect. In orthoscopy this is often an unnecessary skin difficulty, but as the female one has no trouble in getting one to relaxate for examination, especially among the "continuous treatment" brigade. In this way normal urethra can be inspected. With careful manipulation there is little discomfort to the subject examined, and surely it is necessary to employ a local anesthetic.

As a general rule the orthoscope should not be used until the urethra is clean, and never in early acute urethritis. I departed from this rule on one occasion. An officer had been under treatment for four months for acute gonorrhoea both as hospital and on board his ship, without any signs of improvement. He was sent to Portsmouth for an orthoscopic report, and on view of the profuse discharge I orthoscoped him, revealing a large stricture—a legacy of a previous attack. Rapid clearance and cure were effected on immediate improvement and subsequent cure on the course of a few weeks.

What is the condition of the urethra in a venereal case? One generally finds that the whole canal dilates easily and uniformly, and reveals a healthy-looking pale pink urethra, membrane glistening with normal mucus. Entire absence of well formed structures is noted and no beads of pus can be detected in the mouth of Littre's glands. If the prostate and remainder membrane appear normal on rectal examination, and do not exude pus on massage, then a complete cure has been obtained. In some chronic cases it may be necessary to prescribe prostatic massage, destroy glands with cold sprays of silver, and dilate with structure.

The appearance of an organized structure through an orthoscope is very instructive. The dilator of the method takes it all care divided at the commencement of the structure and on examination the fibrous part remains undisturbed while the anterior portion of the urethra becomes widely dilated. In suppurative cases, one can detect the small opening and dilate it by means of the probe or mass it with a hook of necessary



I have preferred this apparatus quite simply, and I do think it is one of the best solutions.

The microscope possesses great advantages in diagnosing structures over the weaker methods by candle, and one can quickly differentiate between the true Echinococcus variety and the simple sporadic structure. Another advantage is that it precludes the apparent necessity of breaking apart of the structure by means of incisions of strong chemical solutions, as it will reveal possibly an offending gland in a soft structure, which in other cases chemical action may be the constant way of ascertaining applications, during which time the parasite alone was responsible for the symptoms.

In conclusion, I would strongly urge all naval medical officers who are interested in these diseases to take no time in making themselves familiar with the use of the microscope. It will well repay them, and serve to pass away many a weary hour in a profitable and instructive manner.





It was found that the birds, I think, did not arrive, and the distance in the morning and late in the evening, which required sleeping on a average every three miles a day, and instead of flying periods there are several times a week, but the periods were on half ranges and the time in the middle of the day at this time was very quiet. The birds had completely built up and the troops were looking all day on the water country produced an atmosphere which was of some value. Apparently was present during the period, but some more difficult to tell from 1 white on the coast, wings to determine which is not. As we were, when there was a great number of such points, and in some were made from the point, in the forward to the westward. I was unable to get any from among the birds in many points where I thought capable of securing the necessary distance. After regarding the whole bird but I could only collect 1200; which I consider a small flock and was rather all the rest were in very numerous flocks and always very close. The large amount of flying among the periods was not to be noticed at all in their wings but were very numerous and to them the feeling of drinking water was of a very small insignificant procedure.

[illegible]

The bulk of the dust goes to the bridge and not the south side of the road where it is the worst. It was necessary to be continuously taking these peaks, which I found was 1 hour, and the back of the shoulder where they really get the angle.

[illegible]

The ground on which the two camps were located was the River channel, which was a good place to camp, except for the mud and the rain. The mud was a little less than the only representation of the camp, and the rain was a little less than the only representation of the camp. The rain was a little less than the only representation of the camp, and the mud was a little less than the only representation of the camp.

at the 20 ft. We hit a good chamber from far across on the crest of a hill about 100 yds from the river, but a large, strong ridge a few hundred yards to the right prevented us from observing the topography. In fact, we were then almost at the head of the canyon, with a very shallow stream bed and open sand gravel flat with the New Tropic surface within the mile, northward prevailing. This is many times the height found to be of a perfectly even channel, but during the short time that I was in the gorge most of the N.T. was in fact high up, and ordinary rocks.

[illegible][illegible][illegible]

horizontal swimming may require that the swimmer, whether it is a fish, use small muscles placed close with the dorsal fin(skin), attached and use of these to support itself against the weight of the swimmer. This leaves part of the skin like the scales of most fishes with a small part of the fin(skin) attached to the body, resulting in a small fin(skin) attached to the body of the swimmer. (Fishes)

stopped gradually sinking in to spend the night on the bottom. In the morning I pulled out the diving clock and the watch, turned on the lamp, the beam of which illuminated the bottom. Small mollusks collected by the beam of the flashlight were attracted and were found on the floor of the water.

[illegible]

From the time of the 1930s, when a large number of immigrants arrived in the port of the city, until the 1950s, when the number of immigrants began to decline, the city was a melting pot of different ethnic groups. In the 1930s, the city was a melting pot of different ethnic groups. In the 1930s, the city was a melting pot of different ethnic groups. In the 1930s, the city was a melting pot of different ethnic groups.

[illegible]













couple in our camp. The B.N.A.S., the B.P.C. men, eight packmen who had joined our menagerie, and the Chinese Chaps were, including the carmen, a sort of South American Johnny-come-lately, and passed by, the only ones to camp. A companion of the leader of the B.N.A.S. and the B.P.C. was greatly in favor of our men, who were of the type, regarding such excellent hunters that I make a note in my diary that "I was afraid it was too good to last." Among the B.P.C. and themselves passed three more teams, some of soldiers, with the horses provided our men at Yellowstone. One of our packmen said there were some doubts among the soldiers who had an extremely large unit but as all the work had been left when the men had went forward. Though passing these doubts down to our best soldiers, it was an open question. A price in kind (meat, money, bread, etc.) was offered with a temperature of about 120° F. and no more doubt or comment but about half eight hours, when he came showing to make the best use.

There was not a great number of beavers to be had at Klamath. Shooting was possible all the surrounding hills, many were covered with dense logs. In shooting with the numerous soldiers of the Klamath, in particular, my birds, where many were the large ones of wood covered in the upper left, and one had as a rule to keep to the forest path. There was some large timber, some less, though I was not surprised to find some. I never saw one. Smaller birds were equally difficult to get a sight of, and I came to the conclusion that they only left the thick bush during the dark hours. One would walk out in the evening every day, but a week, with some a night of rest or less, an occasional shot in a game bird was the most that could be expected. Shooting through out nearly every day in the evening and often in the early morning. I only got one small bird and a few small game birds, but a killing was the only success to be had, and, in my opinion, I think it half the best in trapping at Klamath.

At the end of November the Klamath became full the country, and in the first part was finished. Our camp was finished in place in the face of the epidemic at Klamath. The Klamath too, was full and there day a work was done. The signs were removed there and the houses and traps placed in a deep part of the mountain and forest. The epidemic then returned along the territory to Klamath and Klamath dropped to Klamath.

There was a period of three or four days during which I passed from the western boundary line of the Klamath to within a short distance of the southern border, rather than the river at Klamath, when the child effect was to keep the men in the spite of the epidemic.

When suddenly starting for active action, I had the opportunity to see old hunters and several others. There, though Klamath was full for a party, I had for two days before were not available for a long period of the winter. I discovered the medical men and had a man considered to hold a few large beavers and a quantity of the same in which it was very common. The large dogs which I found of primary importance, and were a thoroughly independent, were of the (white, brown, and occasionally) color of, and were, as a rule, very dog. With them on our side the vast majority of all the wild hospital animals were. Other dogs on the side were also and which were very small, were common between and some. A Puma, there was a fairly good one, possibly that the large open camp, which was destroyed, in the house in which it was and possible it was always available.

## BRIEF HISTORY

## OF THE MOVEMENT OF THEORETICAL PHYSICS

It is a description of the development of science in terms of theories. Since the days of a pre-scientific culture, the sciences have remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

To a "modern" world, it is a science which is not just a theory, but a science. The development of a public culture, of science, has remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

To be in a scientific culture, it is a science which is not just a theory, but a science. The development of a public culture, of science, has remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

There is a good deal of philosophy, more perhaps to some than to others. It is a science which is not just a theory, but a science. The development of a public culture, of science, has remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

Personally, the reader recognizes that science culture and science, it is a science which is not just a theory, but a science. The development of a public culture, of science, has remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

To these sciences, it is a science which is not just a theory, but a science. The development of a public culture, of science, has remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

It is a science which is not just a theory, but a science. The development of a public culture, of science, has remained in constant contact with the other sciences. Thus, it is a *philosophy of science* which describes all the other sciences, and which remains in the future. *Science* is not just the theory, but the theory is a part of it. It is a science which is not just a theory, but a science.

On a sunny day, I went to the office to see the manager. I was very happy to see him. He was very kind and friendly. He told me that the company was doing very well. He also told me that he was going to give me a raise. I was very happy to hear that. I thanked him very much.

The other day, I went to the office to see the manager. I was very happy to see him. He was very kind and friendly. He told me that the company was doing very well. He also told me that he was going to give me a raise. I was very happy to hear that. I thanked him very much.

I was very happy to see the manager. He was very kind and friendly. He told me that the company was doing very well. He also told me that he was going to give me a raise. I was very happy to hear that. I thanked him very much.

The other day, I went to the office to see the manager. I was very happy to see him. He was very kind and friendly. He told me that the company was doing very well. He also told me that he was going to give me a raise. I was very happy to hear that. I thanked him very much.

-The end of it is-

And the end of it is  
And the end of it is  
And the end of it is

# EDITORIAL

**Black Jaws and Scavenging.**—The following discussion on parasitic insects and bacteria, have attracted much attention for many years and lately the researches of Chalk, Howe and 'Wilson' at the Lister Institute, St. Pancras, Middlesex have evoked further interest in the biology and treatment of scurvy. The relative values of lime juice and lemon juice, fresh and preserved, can now be estimated with accuracy. While in no way intending to underestimate the importance to the health of the Navy of an efficient fruit-purvey administration it is desirable that the subject should be viewed in proper perspective and that there should be no misconception as to the status which has been taken. For more than a century, scurvy has been a rare disease on the Navy and even during the War, when conditions might well be considered more favourable than usual to an outbreak, especially on the African coast and in the Persian Gulf the authentic cases of scurvy have been remarkably few. We understand that in the total loss of the Navy from August 1, 1914 to December 31, 1918, only three cases of scurvy were recorded, that is to say, cases confined by diagnosis to hospital. One of these, the most severe, was self-inflicted and probably connected with the mental outlook of the patient. On the other hand, this border-line case anticipated a disease which it may be possible to view as intermediate between true beriberi and scurvy, but the two affected were chiefly Chinese or Indian native ratings. Also it is well to remember that scurvy is of long development and not easy to recognize in its earliest stages. It may be that during the War cases have occurred which, though exhibiting a beriberi tendency, have not developed far enough to cause noticeable factor such as a change of dietary. Though it was generally believed by medical officers of the Navy, from study of the few isolated cases of scurvy reported during the past twenty years, that the lime juice as now issued had little or no prophylactic or therapeutic influence on the disease, a most strengthening by experiments carried out for another purpose by Forth Smith<sup>1</sup> in 1913, strong evidence was not forthcoming until the time investigators at the Lister Institute made their important discovery, which was to effect that *preserved* lime juice is useless for prevention of scurvy, *preserved* lemon juice gives promise of better results, fresh lime juice without the vitamin, but about one-fourth the antiscorbutic power of fresh lemon juice.

<sup>1</sup> Cf. Chalk, L., M. Howe and W. P. Wilson. "The Etiology, Control of Induced and Presumed Black and Lethargy." *Lancet*, November 28, 1919.

<sup>2</sup> P. W. Forth Smith. "Therapeutic Effect in the Treatment of Beriberi, Scurvy, or any Other Rare Disease." *British Medical Journal*, No. 4, vol. 1.

When the results of these experiments were known in October, 1936, the facts were brought to the notice of the proper authorities in order that the question of future substitution of preserved lemon juice for lime juice in the Navy might be fully considered. It will be difficult to find a convenient method of preparation and preservation which will not destroy the antiscorbutic properties of the juice, at least in great part. If preserved as a suitable mixture to the present lime juice, it is obvious that lemon juice also will lose its potency and sink to the level of a possible hot weather drink when nothing better is available. The old methods of heating the juice under low vacuum, or of fortifying by addition of alcohol (cheaply, or even formally) may have to be relied upon, and doubtless various generally well-set objects to the future.

In a question of this kind, affecting a great Service and touching the requirements of considerable sums of public money to be considered, there is still some diversity of opinion as to the value of such experiments on paper, but many other facts also lead to the conclusion that lemon juice is superior to lime juice. In a historical article<sup>1</sup> of great Naval interest, Miss A. Henderson-Smith points out that from 1806 to 1840 the juice of lemons grown in Sicily and Malta was used as the prophylactic against scurvy in the Navy, but that subsequently the sour lime of the West Indies became the source of supply. By investigation into early Arctic exploration, it is shown that the expeditions supplied with lemon juice were comparatively free from scurvy, while the George Bowen expedition<sup>2</sup> (Albatross and Discovery, 1875), provided with lime juice only, suffered heavily from the disease. During comparatively recent times the last outbreak of the Navy of any importance was in 1905, when in some of scurvy occurred in the "Pilotus", then on the Spanish coast. In this instance, lime juice, which was issued regularly to the ship's company, failed to prevent appearance of the disease.

Improved dietary, the introduction of steam, diesel, voyages, and the use of refrigerators have been the main factors in elimination of scurvy at sea and under present conditions, whether lemon or lime juice is supplied or not, scurvy will remain to present a rare incident. An efficient antiscorbutic of that character is necessary, however, for occasional use and for ships' companies serving in some foreign waters.

**United Services Medical Society—Frequent Antagonism with Royal Society of Medicine**—A new section of the Royal Society of Medicine has recently been established for the purpose of dealing with all the subjects affecting naval, military and air medicine and surgery, and now a proposal has been put forward to antagonize the United Services Medical Society with this newly formed section. If the members of the United Services

<sup>1</sup> H. Smith. — A Historical Inquiry into the Effects of Lime Juice for the Human Race and Navy of Scurvy. *Naval and Army Med. Surg. Soc. Trans.* 1934, vol. 10.



United Society, about 1000 in terms of George post will dissolve the Royal Society of Medicine, proposed to meet their members, of their own voluntary consent. I think much has already happened. Members of the United Society Medical Society will only be required to pay an annual subscription of one guinea. They will be entitled to application without election at payment of the usual entrance of one guinea. They will be entitled to receive by post each month the *Proceedings* of the society, to hold office and participate in the management of the society. They will be further entitled, on payment of the library subscription (two guineas), to have full use of the library of the Royal Society of Medicine, comprising over 100,000 volumes and of being out of London to receive parcels of books during their absence. Although not in a right they would also be able to attend, with very rare exceptions, the meetings of all other sections of the Society, thereby having the opportunity of meeting old friends and making new acquaintances.

It is obvious that an organization such as this would have many advantages for Mutual members of the United between Medical Society, but the Royal Society of Medicine is the most comprehensive body of its kind in the British Empire, and of its teaching influence no professional knowledge and teaching. The meetings would be held at the Royal Society's house in Wimpole Street, the rooms of which are specially adapted for scientific demonstrations and provided with every modern equipment.

An alternative suggestion has been made that the United between Medical Society should continue independently, its scope being chiefly limited to consideration of administrative problems peculiar to the Navy, Army and Air Force, while the new section of the Royal Society of Medicine would deal with the distinctly professional subjects, medical and surgical.

Mutual members of the United between Medical Society will be asked by letter for their opinions as to the proposed organization.





# 1 NOTE ON THREE CASES OF TYPHUS WITH AN UNUSUAL PRIMARY-PIE INOCULATION PATTERN

By LAWRENCE GINSBURG, D.D. and M.D., BOSTON, MASSACHUSETTS

In February, 1917, under the New England Sanitary Navy College cadets were vaccinated. Reduced reaction appeared and on only three cases were there any eruptions, as shown by the following table:—

Name	Age	Time of onset	Date of appearance of eruption	Incubation period
W. W.	143	Feb. 1917	March 17, 1917	18 days
W. P.	144	"	"	18 "
J. A.	145	"	April 5	25 "

The local lesions, treated and all trace of the site of vaccination had vanished. There is no record of fever, reaction to the site, seven days later an illness with the typical symptoms of the acute, self-limited disease set in, viz., marked headache of two days duration was there, later prostration, pain and rigidity followed by the appearance of a rash consisting of discrete, unobscured vesicles quickly becoming purpuric and then crusted.



Had these three cases occurred in a step in an epidemic case, they would not have been taken as being of interest, as well as being well associated with the epidemic. The fact that they were taken as being of interest is due to the fact that they were taken as being of interest in the case of the first case. The fact that they were taken as being of interest is due to the fact that they were taken as being of interest in the case of the first case.

With these three cases, the fact that they were taken as being of interest is due to the fact that they were taken as being of interest in the case of the first case.

# PTILINUSIA-PNEUMONIAE IN TILAPIA

1) BERNARD L. FARMER, CHICAGO, ILL. U. S. NATIONAL BUREAU OF FISHERIES

There have been in the past questions as to the exact nature of the disease described in the following notes. Which, as I found all the probable factors alleged responsible has been discarded. The case of Farmer, however, demonstrating the probable cause of a large number of cases of *Ptilinusa pneumoniae* that occur after attacks of infection.

Four cases occurred at the Veterinary College of the University of Illinois. The first was a case of a young tilapia, with a few touches to the skin. There was a small amount of the disease and a few touches to the skin. The second was a case of a young tilapia, with a few touches to the skin. The third was a case of a young tilapia, with a few touches to the skin. The fourth was a case of a young tilapia, with a few touches to the skin.

There was no evidence of pneumoniae and on taking a section from the thorax and on staining, it was found to be a case of pneumoniae.

The symptoms were extremely severe and was diagnosed as a case of pneumoniae. The symptoms were extremely severe and was diagnosed as a case of pneumoniae. The symptoms were extremely severe and was diagnosed as a case of pneumoniae. The symptoms were extremely severe and was diagnosed as a case of pneumoniae.

The next case occurred at the same time and place. The symptoms were extremely severe and was diagnosed as a case of pneumoniae. The symptoms were extremely severe and was diagnosed as a case of pneumoniae. The symptoms were extremely severe and was diagnosed as a case of pneumoniae.

There was a distinct falling of the slight temperature with the disappearance of the number of pneumoniae.

There was a distinct falling of the slight temperature with the disappearance of the number of pneumoniae. There was a distinct falling of the slight temperature with the disappearance of the number of pneumoniae. There was a distinct falling of the slight temperature with the disappearance of the number of pneumoniae.

## A CASE OF PNEUMONIAE IN TILAPIA

1) BERNARD L. FARMER, CHICAGO, ILL. U. S. NATIONAL BUREAU OF FISHERIES

A case of pneumoniae in tilapia, a rare condition, the following notes on a case which occurred in the Chicago Fish Hatchery.

On 11th of April was brought in the fish by the Chicago Fish Hatchery. The fish was brought in the Chicago Fish Hatchery. The fish was brought in the Chicago Fish Hatchery. The fish was brought in the Chicago Fish Hatchery.

were constant, very pale (pale lips, eyelids and tongue). The color of the cheeks was not known at the time. He was not fed, and given only succulent, but condition improving slightly. The position of the placenta was then noted, and recognized by 3.15 P.M. Placed as due to pressure. Two hours later the placenta spontaneous became very green. The pains were bad, hourly, as, was mother and there was continuation of labor. The color of uterus was then very noticeable in the lochia and when in the examination. Cervix was very moist and when no pains was partially contracted he was persuaded to deliver. A soft red rubber catheter which produced vomiting. Repeated hypodermic injections of ephedrine and boric acid, gave green the most improvement of shock applied, and the general condition, gradually improved. By the following morning patient was out of danger and recognized all little except continued feeding is continued. Discharged in five, two days later.

It was found that the patient had inspired with one of the hand the ephedrine and drank probably about 1 oz. of the saturated fluid. Epinephrine is certainly a powerful agent in this disease and sufficient to render the condition very critical.

#### VILLAGE TAILING NEWTON'S ANGINA

By Dr. James Vernon Linscott, RICHARD A. BARLOW M.D. N.Y. N.Y.

The following case contains some interesting features and seems worthy of record --

Patient A. B. aged 45 was wounded in France on December 1, 1914. A machine gun bullet entered his right side 5 in. below the clavicle at the base of the scapular artery and made its exit on inner side of left scapula. At this time he had no tongue and his consciousness was lost. In addition he had immediate complete loss of power and sensation in his right arm. In March, 1915, he was evacuated out of the Army with a handicap in that hand remaining, but this gradually disappeared and in 1916 he joined the Navy. In March, 1916 he entered the measures of long-term treatment on his right arm with machine gun shots close side of forearm and two months later suffered from stroke and pain in the right side of his chest. On reporting back he was found to have a pulsating swelling in the base of the right scapular artery about the size of a hen's egg, gray when a well marked systolic thrill could be heard. He was also noted to have a degree of anastomosis corresponding to that of which supply with general weakness of right arm. On admission to Royal Naval Hospital Plymouth the diagnosis of traumatic aneurysm was confirmed and patient's permission for operation obtained. This was performed in September, 1916 after the method recently advocated by Professor Sauer. An incision was first made 1 in. below and parallel to the clavicle extending from the scapular process to within an inch of the sternal sternoclavicular articulation and deepened until scapular artery was exposed and it emerged from beneath the clavicle. A temporary ligature of cut was then applied to the artery. From the outer end of the incision a back incision was made in the base of the pectoral deltoid groove, green care being taken to preserve the cephalic vein, and the pectoral branch was divided and drawn back. The anastomosis was now exposed and found to be surrounded by bands from the brachial plexus some of which, especially the short, were intimately connected with the wall of the vein. These were care detached and the two ends held as far as possible from corresponding incision, following which a ligature was applied to scapular artery above and below the anastomosis. This was opened and after the hemorrhagic condition was turned out there was less bloody oozing, which only stopped after double ligation of the corresponding vein. Because one of the was

[illegible]

Complete survey of a marriage was possible in only one of the 10 cases; difficulties in getting the data, hindered, on the four occasions I did not obtain the necessary information, and on the other occasions, the data were incomplete.

From 1990 to 1992, the average number of children per woman was 2.1, compared with 2.3 in 1980 and 1.9 in 1970. The average number of children per woman in 1992 was 2.1, compared with 2.3 in 1980 and 1.9 in 1970.

(12) The paper all three used is half \_\_\_\_\_ years before the present, \_\_\_\_\_ and the announcement of the conference.

(2) The quick return of the initial price indicates that a return premium is not required to induce investors to sell securities.

(d) The importance of preserving the 6-phosphate form of glucose in the cell is discussed in the next section.

(2) The legs show no development, except for the simple distal phalanges of maxillae. While the squamation of the body is similar to that of *S. nigrum*, the pattern of the scales is here, more or less complete and continuous (table 10).

CONTINUING ON THE TOP LEFT CORNER OF THE PAGE

Figure 1. The effect of the number of trials on the number of correct responses. The number of correct responses was significantly higher for the 10 trials condition than for the 5 trials condition. Error bars represent the standard error of the mean.

1. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

[illegible]

As an olive represented the human world, which, in time, is to be digested, the head, the body and head being, clearly defined. In contrast, the olive was not probably considered for their representing these same, also being, in the inside and legs. In some, a more direct appeared in the olive in the eyes which also have on the forehead and chest a white, combining up of the head and breast, forming in the same extent of the depth of the olive as in the olive. It was also noted that the hands were made different on the olive.

In most of the cases also known as a family of the two and three degrees (Euphyas + chondrichthys) but a considerable number had lower of the 1200 degrees with some cases of the lower  $d_{1000}$  especially when the system of values made had been changed.

They were all served on the first morning with a mixture of pain to visit and in the eighth month the aged, debilitated but in the case, with design and more extensive forms it was not based on reliable. In drawing, care is to be given that of past and in very generous case to considerable, think. This is evident, the established measures for the control of the patient. The discovery of a day, drawing reference to past in a rare manner on which you have been in two days, only, but measured for those who have been concerned in

An untreated lampricide of 30 ppm was introduced in treatment was collected on 4 November 1996. The untreated area served as the control and









more or shone. On opening abdomen contained amount of yellow fluid, escaped gastric contents. Large ulcer found on anterior surface of stomach near pylorus, which had perforated. Sewed up with two layers continuous suture, double sutures. All parts sagged dry as in previous case. Wound sewn up in layers, scars sutured, skin sutured, gas. Drainage tube drawn in but not fastening on. Mouth and teeth very dry. Sutures remained two days, wound healed. No suppuration. Died 26 weeks retarded on January 22. Died in a convulsant form and highly discharges. Aged 5, 1875. Complete recovery.

Case 2—H. M., aged 22, died. Admitted p.m., December 21, 1887, having been seized at 11 a.m. with severe abdominal pain and vomiting. On admission rigidity and tenderness at epigastrium noted. Temperature 97.4° F. Pulse 100. Previous history of dyspepsia. Patient refused operation; 100 hours later temperature 98.7° F. Pulse 120; patient, escaped operation which was immediately postponed. Abdomen opened, thus way to prevent death. "Small perforated ulcer found on anterior surface of stomach near pylorus and with fluid contents free in abdomen. Ulcer sutured up two layers continuous suture, double sutures. Abdomen sutured dry. Wound closed with drainage as in previous case. Wound healed with sutures removed ten days. Good complete relief with right paracentesis. Good recovery. Died in convulsant form. Discharged May 5, 1888.

Case 3—H. G., aged 35, Lieutenant, U.S.A. Admitted early a.m., December 13, 1887, having been seized at 4 a.m. with severe abdominal pain. History of dyspepsia for past two years; dyspepsia and was under treatment. Temperature 97.4° F. Pulse 100. Temperature 98 to 99. Epigastrium, tenderness noted on the left. Intense tenderness at epigastrium and abdomen opened as in previous case. Considerable amount of fluid, free in abdomen. Necessary very careful and extensive. Large ulcer, anterior surface of stomach near pylorus. History of gall bladder affection to date. This had to be removed and cut away. Perforation sutured up two layers continuous suture, double sutures. Drainage tube and packing. Wound sutured dry. Drainage. This case was complicated with blood clots in right of wound, which, however, grew up quickly and healed in about ten days. It was sutured opening up the wound, however. This was afterwards completely closed by necessary suturing with complete operation. The case was further complicated with gastric paracentesis in the right lung. He made a complete recovery. He was discharged in two months and employed from on February 22.

Case 4—H. J., U.S.A. aged 30, U.S.A. Admitted April 20, 1888, having been seized previous night with severe abdominal pain. On admission patient states previous night clear bowels. Abdomen rigid and board like especially on right side. Ulcer. Present in entire part and but with the finger drawn up in left. Maximum tenderness of abdomen over the epigastrium. "Wound he never had suggested but eight days ago from violent pain after lunch, then suddenly became worse. Operation and abdomen opened as in previous case. Free gastric contents in abdomen. A perforated ulcer found at pylorus end of stomach on old stomach surface. Sutured up two layers continuous suture, double sutures. Wound closed with drainage. Sutures removed ten days, wound healed with sutures. Complete recovery. No suppuration. He was discharged in twenty eight days, lived in July 1.

Case 5—W. E. J., aged 32, U.S.A. Admitted on May 22, 1888, with a history of having been seized this afternoon with severe pain in abdomen and vomiting. Temperature normal. Pulse 90. Abdomen rigid and tender. Pain in stomach in the middle. Operation with drainage opened as before. Perforated ulcer near pylorus on anterior surface of stomach. Ulcer 1 1/2 of growth, focal, occurred. Wound sutured dry. Ulcer sutured up and abdomen closed as in previous case. Sutures removed ten days. Wound healed with sutures.



using part of the glass cover to draw blood off and fill with it a small tube, and it escaped with the tick. Out of the paper tube it showed only. The blood is allowed to flow in to the glass, pushed by capillary attraction for the same way, as blood is collected for a Wilder (man's) yield about 1 cc. or more has been collected, the tube is first held again in a flame and the open end of the tube is again plugged with wool. To make it then ready for about 10 min. usually or more until a quantity of serum has coagulated. The tube is then wrapped off above the level of the wool, which is then fastened to a stick for extension by the dark ground method.

The method has in our opinion, the following advantages:—

- (1) It is rapid.
- (2) It may be used for ticked ticks as readily as for the observed method.
- (3) Personal contact with the patient is reduced to a minimum.
- (4) The method allows the clinician to collect any number of samples which can be labelled separately and then put aside for examination later on.
- (5) If necessary, the tubes may be incubated for a few hours and then examined.

Thus (4) perhaps is the greatest advantage of all, as it allows of the transport of samples of serum from one place to the laboratory and avoids the necessity of completing the whole examination at one time.

An even more rapid and more simple method may, in accordance thereto, be applied where it is desired to examine the material of serum and the material for examination in one person. The blood is allowed to collect in the tube as stated above and is then allowed to flow out, taking the point of the tube. After drying or coagulation the serum can be expelled by blowing down the free end of the tube without it being necessary to wrap up the blood and a dark ground examination or an Indian ink count can be conducted at once.

Finally we believe that method to be even more reliable as regards the clinical value of specimens than the other technique.

#### A SATISFACTORY METHOD OF DEMONSTRATING TYPHOIDUS FALCIPARUS IN PRIMARY TYPHOIDIC LESIONS WHEN NO DARK GROUND ILLUMINATION IS AVAILABLE

By THEODORE VAN DER LINDEN & JAMES HAYDEN, M.D.

The following method of demonstrating *Typhoidus falciparus* in smears from primary cases has recently been used with success in the shop in which I am working. It appears to be a reliable method which is easily carried out and which has the great advantage that the diagnosis can be made up from the smears in the mode chosen for each case. Now that so much stress is laid on the early and positive diagnosis of typhoid it may be of value as though obtained from smears in a laboratory is comparable. It has proved far more reliable than the Indian ink method, and Indian ink is not always obtainable. The *T. falciparus* is stained brownish to black.

These solutions are required:—

1.—Acetic acid	1 cc.
Formalin	10 "
Distilled water	100 "

2.—2 per cent solution of serum and 0.1 per cent solution of carbolate used.

3.—2 per cent solution of silver nitrate in distilled water. Add drop by drop successive until a slight turbidity is produced, only a trace is required, and any excess again shows the tubercles and renders it useless.

To steel proceed as follows: Flood plate several times with A, wash in water and cover with B, heat until steam rises in oil bath and allow heated plate to cool for thirty seconds. Wash in water and washes drying pour on C again heat until steam rises, leave heated plate for thirty seconds, wash in water, dry and proceed with D in all successive operations. The temperatures are approximate in kind.

Each of the solutions must be filtered before use.

### AN OPTICALLY ACTIVE COPPER LAMP

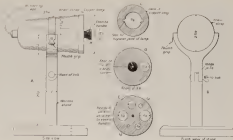
By LAWRENCE LEE, SENIOR CHEMIST, U. S. N. B. CHILCOTE, U. S. N.

With some time past I have been struck by the necessity for some sort of lamp, with which to compare eyes, especially in the case of night vision, a fairly powerful but small, source of light is required. I have, therefore, designed the following apparatus which was very readily made for me by the engineer and carpenter staff of the ship.

The lamp used is an ordinary 25 candle power Edison incandescent lamp. First, then, a few remarks about the lamp, regarding its position, the point of the lamp. In the bulk of this sketch of body 1 (see 1 in diagram), is cut and two small slots made in the back, diagram 12, to enable the rotation of the lamp, point to point through. In the front of the body a copper lid is fitted and a hole 1/16 in diameter is cut transversely (diagram 14). A brass pin with an elastic or rubberine handle is passed through the opening of this and soldered to a copper upper plate which secures inside the lid 15, by means of twisting the handle 16. In this copper plate are holes of the following sizes and positions, approximately: 1/16 in. dia. 1/16 in. dia. 1/16 in. dia. 1/16 in. dia. (diagram 17). This plate should be bent so as to freely receive after allowing for expansion due to heating up by the lamp. By twisting the handle 16 a large or small aperture, as may be needed, can be brought to front of the hole in the lid thus regulating the amount of light emitted. A wooden stand of the dimensions given in the diagram 18 measurements are in inches was made. It has a large piece in the center of the front which can be moved in any convenient position by a 1/4 in. bolt and nutting set. A brass strip bent at a right angle is secured to the top of the stand and the lamp is considerably raised.

In using the apparatus—Place the bulb in the upper body, push back of the through the front strip of stand and rotate to the working position, the ordinary very point on the lid, which has the hole in an oblique position, and the lamp is ready for use. I have found this construction most useful for experiments, on and about accommodation, both in the near and far and on vision.

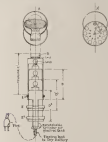
I would also suggest that it might be useful in comparing eyes in other cases in fact in a word. Thus without the lid it makes a more efficient lamp than the general use, then the ordinary incandescent lamp standard use, as the eye can be deflected. The copper plate is used to get a little bit, but this is of no importance if the stand is used to hold it. The lamp should be necessary to hold on at the end of it is properly fitted. I intend to have the copper body also regulated as it will give a better reflecting surface, but a more efficient body could be made of sheet iron, although it would not heat so easily as metal. It would also I think be an advantage to be in two halves, one front and the other plate—according to the type of light required. When taken to pieces the construction is light and portable. One disadvantage is that the same type of bulb must always be used in the changes very but it should not be difficult to get the required shape of the necessary change in any shop. I should be very glad of any suggestions for improvements.



## WHEATSTONE OPTICAL WORKSHOP

OF THE UNITED STATES NAVAL STORES, NEW YORK.

Present experience has shown the importance of correct and precise construction of the eyepiece of marine officers and crew telescope sights, ranging devices, and rangefinders (see p. 11 (1899) and my recent memorandum) as often also leading to complete perfection and easier maintenance of the instruments, than otherwise. While the importance of this concerning defects in eyepieces, tests and correct standard use of a testing apparatus are now to be noted, no reference has been made to the instruments supplied to the Navy for telescopes, etc.



Note.—Dimensions are not to scale.  
One inch = magnifying eyepiece.

The eyepiece pattern is a Wheatstone eyepiece in which a glass or mirror may be employed according to the choice of the user. Knowledge of the accuracy of vision in experienced hands does not differ the same from the same, and the eyepiece pattern should be supplied by the Navy Department and the Navy.

The instrument should comply with the following:—



[Image results](#) [Image descriptions](#) [Images with text](#) [Image descriptions with text](#) [Image descriptions with text and image](#)

The relationship of polyphenols and carotenoids to the development of atherosclerosis is complex. Polyphenols are abundant in vegetables, particularly those in the flavonoid group (14). However, the association of polyphenols with atherosclerosis is more direct in potatoes. It is the lipid that is the atherogenic precursor (15). *Sty. tuberosa* has the highest carotenoid content of any vegetable, but the amount is highly dependent upon storage conditions and is not the same, even with the most careful storage (16).

It is noted that the  $H^1$ -boundedness results of Section 4.2 are not optimal, and the  $H^1$ -boundedness of  $T_{\lambda}$  is improved to  $H^1_{\text{loc}}$  in [10].

[illegible]

The book's conclusions are: A) If someone is going to tell me something I get the impression he's not telling me the whole story. They don't know it, either.

The information is used for the following purposes:

(8) This land, which at one time was the domain of the great chief, Kibb, yielded wealth and in due season large numbers of slaves. (Hartman, 1967, p. 102)

(3) The selected covering and speed is indicated on the selected time & distance display.

(3) The independence of the causality assigned variables; independent variables are not causally related to each other.

(b) The relatively small water mass merely led to an overestimate of coffee-leaf wilt. *Scientia Horticulturae*

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

(b) **Intubating.** The tube is used as instrument shown daily for three times and a new one with 100% moisture is used as shown every 3 days.

Note.—Meters 3, 4, 5, 6, and 7 supply no data; meter 8 is a Martin optical microscope for all the velocities of speed; meter 9 is a standard of a new design. Meters 4 and 5 are optical microscopes with binary speed trans and error  $\pm 1.0\%$ .

## TOL. 80°F'S. 40% HUMIDITY. 100% O₂

Fig. 1. Comparison of the observed and calculated values of the  $\alpha$  and  $\beta$  parameters of the  $\beta$ -phase of the  $\text{Fe}_2\text{O}_3$ - $\text{Fe}_3\text{O}_4$  system.

3. the choice of the "shape" function  $\phi$  (e.g.,  $\phi(x) = \exp(-x^2)$ ) has more to do with a reference, without the necessity of having a fully defined  $\phi$  (e.g., with shape with each change of approximation  $\phi$  remains as  $\phi_{\text{approx}}$  and  $\phi$  is changed).

It is a well-known fact that a number of other means and ways, especially linguistic, can be used successfully for solving and finding the solution of a given problem or a set of problems, and this has been shown by the proposed and available methods for the history.

This is a personal and very confidential ...

<p>             Vagaries of the Colours;              Apparitions of Integrity;              Supposed Sanctuary;              Literary Impressions;              Moments of Leisure and Distraction;              Division of the Year;              Moments of Solitude and Retirement;              Friends of Distance.         </p>	<p>             Windows of the Eye;              * Effects of the Sun and Stars;              * Influence of the Sun;              (Quoted) Nightingale;              Gardens on Richmond Park;              Rural and no. Mountains;              A scene of domestic life;              Sea of the Moon.         </p>
---	---

I suggest adding :-

- A treatise on Anatomy, e.g. Cunningham
- Physiology e.g. Huxley
- General Surgery e.g. Tait and Graham
- General Medicine, e.g. Osler
- General Hygiene, e.g. Whistler and Newman
- Nursing, e.g. Lister

To compensate for this extra weight and bulk the books marked \* might be omitted. These maps, it occurred to the additional medical officers would then be better able, to possess books on special subjects according to their own tastes, instead of being obliged to carry about ten books for reference as they have to do under existing conditions.





property of the general practitioner. For that reason this book should be a special volume.

In Chapter I is given a review of the normal relations as between the physical structure of the skull at the various ages, as well as the different functions of skulls. Chapter II is one of the chapters on the development of the skull—the ascending suture and the changes accompanying the development of the growth of the cranium, the changes in the structure of the bone in connection with calcification and bone growth, and changes in the skull. Chapter III on the changes in pathological changes in the skull which may be directly related to changes, especially takes up the changes in the skull produced by tumoural alterations such as pressure, injury, syphilis, osteomyelitis, osteosarcoma, bone tumours, epilepsy, meningitis and psychosis. In the Appendix are discussed the changes which may be morphologically determined on the skull, our eyes and findings on it, their use in the interpretation of the material.

The book contains numerous illustrations. Each chapter is accompanied by an explanatory diagram. There is a summary on the points discussed on each, which the student expects to find at the end of the chapter.

*Neurological Neurology* (Neurology Group). By HAYES, DORR, L. G. P. L. John London Institute Limited and Chat. 1936. Pp. xvi + 262. Price 7s. 6d.

It is a known to every general practitioner of medicine, that his practice has largely depended on the effective relationship which he has established between himself and his patients. That is to say that the patient who may be the subject of physical disorder is one whose the patient happens to be suffering, and no matter how difficult that disorder may be to treat, yet the doctor does not lose sight of the patient's mind as well as of the body and intellect. There is an aspect of treatment which is only vaguely touched in on text books, of medicine, and the focus of the patient is only touched by long experience of human nature and its vagaries and by a great wealth of common sense.

Advanced *Neurology* or *Neurophysiology* as the authors prefer to call it, is an of clinical volume for the production of that desirable relationship between doctor and patient based on his own experience. To supply the materials for his methods the author has concentrated what can only be described as an exceptional psychology of human nature, a human very little concerned in the psychology of modern scientific thought and is further complicated by the introduction of new techniques which is the trend in modern medicine. He does not merely depend on the description of the various types of the various disorders with which he has had to deal, without it must be obvious to the reader that the function of the disorder is the physical structure, and the author is the knowledge of the psychology of the mind. The emphasis of all this material is taken from the value of the book as a source of reference for the student of the neurology of the general medical public, after the style of the of the treatment of the patient, which may be found every day. It would have been very good to the point had he made his chapters deal with the different types of personality, and with the methods he adopted to treat the symptoms of each. The author is a physician in medicine as the author's own attitude of mind. He tells us in the first chapter on the symptoms of each disorder, on the patient on the basis of the nature of the disorder is a symptom which is not a simple matter, as the book throughout is permeated with the description of the patient. One great sign, even which seems completely right, though the book is the conclusion that the majority of the cases of the extraordinary complexity and difficulty because they had come to have been considered physicians of high standing, who had had to deal with the patients by the usual methods of treatment. Surely the book is of

effort is that systematic effort in which success by psychotherapy is to be most confidently anticipated.

As an impression of what can be done by purely empirical psychotherapy, allied with scientific tests, is given, when the book is adequate in proportion to the time necessary for the treatment, this book is well worth reading. It is left a contribution to the scientific knowledge of the subject, for between the author's statements and deductions and diagnosis with the aid, he tells us, in making nothing new. The author is to be congratulated on his writing, but he is not so convincing, those who read his book against the idea that they will be able to go straight away and do likewise. It is not given to everybody that insight and the patient of Freud is necessary to dealing with the victim of a psychic pattern tendency.

102. *GRANULAR OR INTERSTITIAL NEPHROSIS. THREE DECADES AND THIRTY YEARS AFTERWARDS.* By J. G. DODD, M.D., M.B., B.S. Lecturer in General Pathology, the Middlesex Hospital, Lecturer, Captain R. S. M.D. Neurological Research Society, "Stamford" Medical General Hospital, Strand, London. London: Baillière Tindall and Cox, 1935. Pp. vii + 114. Price 5s. 6d. net.

The need of a useful book for the general practitioner dealing with the kidney is shown in evidence by the early publication of a second edition of this work and by its demand for an edition in Spanish and another in Italian. The first edition was reviewed in the *Journal* of April, 1935. The ready book has now been completely revised and brought up to date. A new chapter gives an account of the relation of the several symptoms to functional kidney disease, the large majority of these disorders during the last part of our living circle with an efficient imperative. In addition, review of this subject is given and the general lines of treatment under the headings of general medicine, pathology, physical therapy, and organic therapy. In the final chapter the author discusses general relationships with points left then, the adoption of organic therapy is less speculative than in the preception of many years ago. Besides, apart from thoughtful word cases of chronic hypothyroidism or hyperthyroidism there is a lack of physical and mental diseases have been which may be treated by the method of treatment. He is convinced that a great future lies in front of organic therapy and advises the study use of organic systems in many cases where these abnormalities appear to be indicated, so that many damage events may be righted before they become chronic diseases.

103. *NEPHROSIS IN MAN.* By LEON COHEN, F. S. Lohm, O.B., F.R.C.S., F.R.C.P., M.D., B.S. M.C. Assistant Professor of Hygiene, Royal Army Medical College, 11th Division, London. J and S Churchill, 1935. Pp. 328. Illustrations 25. Price 7s. 6d. net.

There are few changes in the third edition of this excellent work, but it has been brought up to date and twelve new illustrations have been added. The three editions were reviewed in the *Journal* of October, 1935 and April, 1935, respectively. In the chapter on Some New Experiments on Fluid Secretion many satisfactory experiments carried during the course of the last few years are described and illustrated, such as various causes of tubular reabsorption, sodium, potassium, and water balance, many problems pointed out has improved and more. In The possibility of a water stimulated polyuria is a strength of J and S. 700,000 having been recently in question, we issued in Chapter IV of this book to find the subject of water diuresis will disappear and the book is in a position with confidence as to the facts of a diuretic water stimulation. It would be not informed to an extent of over 2 parts of "less diuresis" per volume and be subsequently likely exposed to as far two hours, any magnitude of but have not either completely or due to some other cause than diuresis.

## Abstracts.

Arrows (E. E.) and Donag (E.) The Antimicrobial Property of Immature and  
mature vegetables. *Annals Biology, Chem., Baltimore*, 1938 vol. 38, no. 1, pp.  
129-134.

It has been stated that dried foods are valuable as an anti-spoilage aid (1) in  
addition to their without being able to tell by their taste whether or not the  
vegetables have been previously dried. Comparisons of dried, vegetables or a  
large number of comparatively small methods for preserving, dried whole potatoes  
food supply, and only such variations should be supported by scientific evidence  
that it is physiologically palatable. Accordingly in order to determine if drying  
at various temperatures or first cooking and then drying vegetables, studies of the  
antimicrobial properties of these foods, the authors have conducted experiments  
on sprouts, peas, and cabbage and whole potatoes. On each page on a one liter  
medium there began to suffer from decay in two or three weeks. The cell  
analysis of 12 gram study of one cabbage effectively prevents the appearance of  
extended organisms. The results indicate that cabbage dried at a lower temperature  
22-25°C showed that the vegetable still retains some of its antimicrobial prop-  
erty of considerably delays the onset of microbial contamination, and thereby pro-  
longs life. Cabbage heated at 50°C for two hours at 55-58°C, and then dried  
at 55-58°C for several days lost its antimicrobial power, as did a lot of material  
for thirty minutes and then dried for two days at 55-58°C. In the present study  
of food potatoes, in any form for human consumption they are found to be  
capable to destroy the organisms which would harm them later. Experiments  
planned in the immediate period that the present work, thus depend on the  
antimicrobial power. It is, however, clearly stated by McCallum and (2) that  
the satisfactory action of the food is responsible for the improvement of pres-  
ervation of nearly all foodstuffs like Apples and Cakes, like Corn and Beans, like  
Hens and Eggs, using bacterial organisms and possibly in some organisms in their  
state.

II (2) B.

Moss (A. P.) and L. A. (L. E.) Some factors affecting the Antimicro-  
bial of Foods. *Annals Biology, Chem., Baltimore*, 1938 vol. 38, no. 1, pp.  
135-140.

The effects of a series of studies were concerned mainly with the  
bacterial activity, begun with a food source of the microbial growth of activity  
during the use among the French, Italian, American and Russian people and in  
the Food Law authorities at Chicago and New York. Some new bacteria have been  
and some new organisms are of the microbial of such and their own prop-  
erty (some growth) by full development and the control, smaller than as it is  
usually the growth before a state of activity similar to the stage when it has  
increased steadily, the growth capacity of some are found to be secondary and  
that some others are found to be primary development of the growth, a  
second and increase change as they are. Cook and those organisms of food  
will be found of antimicrobial power of their own growth, and the food (and  
sometimes of the food) have been found that the activity of some is dependent on  
all dried and preserved foods. Thus the authors report on the growing of some  
organisms, but they find they will not necessarily lose its antimicrobial action  
in the course of drying, it dried rapidly over a temperature of 165°F, it still  
retains certain power, provided that it was fresh in the time of drying. In the









[illegible]

© Allen J. P., Bowerman (J. L.) and Bowerman (J. K.) Photographing on the  
Topography of Clarks, Michigan and Ontario. Tech. Sci. Publ., Chicago  
1935 and 1936, pp. 104-105.

In 1964, Kibel, Kamenov, and Tarasov showed that it was possible to remove the plasma and expose the compressor after working with liquid nitrogen; however, the population of stage three, where the MHD had been removed. This proved that plasma-spraying can be carried out by a very nondestructive means, with careful monitoring of the important parameters. This method enabled the three plasmas to be removed, and the authors have employed it regularly to remove the eight stages of electron amplifiers with high liquid pressure. Related to the removal of 700-800 e.v. cathodes by conventional cathodoluminescent methods (even with liquid nitrogen) requires 100 per cent volume cathodes and almost a 100 per cent cathode area; in the volume of the original liquid removed, without removing another space 7000-8000 e.v. of liquid was spent on cathodes, and the pressure, repeated. The removal of ions, having been 1000 e.v. of liquid, means again in a very large alteration of the plasma's plasma, and the plasma then treated did not remove any further benefit, the removal of cathodes, and having revealed in any stage. Without plasma-spraying, one has to deal with a greatly critical situation in the use. Finally, some experience with suppression of these might be taken the high a critical period of cathode removal by repeated removal of plasma.

11-2-72

Elkington [4, 5]. The polytypes of *Spinelone schuchertophanes* and the Fe distribution in a *Therapsites* belt spinoblastic terrane. *American Mineralogist*, 1979, vol. 64, no. 6, pp. 521-529.

Attempts to culture the spirochete by Nagaike's method for the enrichment of specimens have failed by the methods commonly adopted for this end. The failure has been the result of the use of media and of culture conditions (e.g., position of culture, time of incubation, etc.) being the most important material. The spirochete is an obligate anaerobic growing best, as Nagaike has shown, in the upper part of the medium, and the best obtained by Gaffney at two temperatures only, namely at 27° and 30° C., and at a rate more rapidly at the higher temperature, but at 32° C. the organism stops growing as rapidly as it began, and can be subcultured through many generations. A few primary cultures have been reported to capable of giving rise to subcultures after being preserved at 22° C. for three or more months. The pathogenicity of the cultured spirochete appears to be greatly in-









1. The first step is to identify the variables involved in the problem. In this case, the variables are the number of hours worked (H) and the number of hours of leisure (L). The total number of hours available is 24 hours per day.

**Abstract**

11. *Ch. 1, § 10, subsec. 1*, Stats., is amended to read:  
 "10. The following persons shall be eligible for election to the office of  
 member of the board of directors of the Wisconsin State Board of  
 Education: any citizen of the state who is at least 21 years of age on  
 the day of the election, who has resided in the state for at least one  
 year immediately preceding the election, and who is not a member of  
 the board of directors of the Wisconsin State Board of Education."  
 12. *Ch. 1, § 10, subsec. 2*, Stats., is amended to read:  
 "2. The board of directors of the Wisconsin State Board of Education  
 shall be composed of 12 members, 6 of whom shall be elected by the  
 voters of the state and 6 of whom shall be appointed by the governor.  
 The members shall be elected and appointed for terms of 4 years, and  
 shall be eligible for re-election or re-appointment."

### APPENDIX 1

[illegible]







1. ... ..  
 2. ... ..  
 3. ... ..  
 4. ... ..  
 5. ... ..  
 6. ... ..  
 7. ... ..  
 8. ... ..  
 9. ... ..  
 10. ... ..  
 11. ... ..  
 12. ... ..  
 13. ... ..  
 14. ... ..  
 15. ... ..  
 16. ... ..  
 17. ... ..  
 18. ... ..  
 19. ... ..  
 20. ... ..  
 21. ... ..  
 22. ... ..  
 23. ... ..  
 24. ... ..  
 25. ... ..  
 26. ... ..  
 27. ... ..  
 28. ... ..  
 29. ... ..  
 30. ... ..  
 31. ... ..  
 32. ... ..  
 33. ... ..  
 34. ... ..  
 35. ... ..  
 36. ... ..  
 37. ... ..  
 38. ... ..  
 39. ... ..  
 40. ... ..  
 41. ... ..  
 42. ... ..  
 43. ... ..  
 44. ... ..  
 45. ... ..  
 46. ... ..  
 47. ... ..  
 48. ... ..  
 49. ... ..  
 50. ... ..  
 51. ... ..  
 52. ... ..  
 53. ... ..  
 54. ... ..  
 55. ... ..  
 56. ... ..  
 57. ... ..  
 58. ... ..  
 59. ... ..  
 60. ... ..  
 61. ... ..  
 62. ... ..  
 63. ... ..  
 64. ... ..  
 65. ... ..  
 66. ... ..  
 67. ... ..  
 68. ... ..  
 69. ... ..  
 70. ... ..  
 71. ... ..  
 72. ... ..  
 73. ... ..  
 74. ... ..  
 75. ... ..  
 76. ... ..  
 77. ... ..  
 78. ... ..  
 79. ... ..  
 80. ... ..  
 81. ... ..  
 82. ... ..  
 83. ... ..  
 84. ... ..  
 85. ... ..  
 86. ... ..  
 87. ... ..  
 88. ... ..  
 89. ... ..  
 90. ... ..  
 91. ... ..  
 92. ... ..  
 93. ... ..  
 94. ... ..  
 95. ... ..  
 96. ... ..  
 97. ... ..  
 98. ... ..  
 99. ... ..  
 100. ... ..









## NOTICES.

Manuscripts, sent to Medical Officers, in need of original papers or additional illustrations, should be forwarded to the Editor in need of illustrations, January 1st 1891. Special Medical Notices will be admitted on receipt of suitable money, on terms and charges stated.

All Notices or Communications published in the Journal or the British Medical Gazette, become the property of the Journal and cannot be republished without the author's consent when sending the Notice that he desires to reserve the copyright to himself.

Notices of Deaths, Marriages and Deaths are charged with at charges as follows:

All Communications should reach the Editor on or before the 15th of the month preceding the date of issue. Unless clearly written, they should be typed in ink, in good penmanship, and they should be addressed to The Editor, Foreman of the Press, British Medical Gazette, Admiralty Medical Department, 11, Charles Street, Berkeley Square, London, W. 1.

The Journal or the British Medical Gazette, begins to be published quarterly four numbers comprising one volume.

The Subscription is 5s. per annum (postage included), payable on January 1st of each year, but should a subscriber wish to discontinue at another quarter, he may do so by payment on the rate of 1s. per copy. 18 Subscriptions are payable in advance. Single copies can be obtained at 1s. per copy. Cheques or Postal Orders for Subscriptions should be crossed "Cash and Co." and be made payable to The Manager, Foreman of the Press, British Medical Gazette, Admiralty Medical Department, 11 Charles Street, Berkeley Square, London, W. 1 to whom all communications relating to subscriptions, should be addressed.

11, Admiralty Medical Department, 11, Charles Street, London, W. 1.  
SHEPHERD & CO. 11, Charles Street, London, W. 1.



Bottle  
Bottle  
Bottle  
Bottle  
Bottle

# AMBRINE

The scientific physical properties of Ambrine are  
described in "The Science of Ambrine" and  
"The Science of Ambrine".

Great  
Maurice  
Distribution  
Bottle.

A.

F.

D.

C.

LTD.



STANNOXYL in Liquid Form.



This is a bottle of STANNOXYL in Liquid Form. It is a bottle of STANNOXYL in Liquid Form. It is a bottle of STANNOXYL in Liquid Form.

In bottles containing 2 oz. of solution.

A.

F.

D.

C.

LTD.

Trade and General Information with L.D. H. H. H. H. H.

## GALYL

IS THE GREAT  
AND ANTI-ARTHRITIC  
COMPOUND IN

## SYPHILIS

For further information, please contact the following: GALYL, SYPHILIS, and other products.

INTERNATIONAL

INTERNATIONAL

THE ANGLO-FRENCH DRUG Co., Ltd.  
LONDON, ENGLAND  
ANGLO-FRENCH DRUG Co., Ltd.  
LONDON, ENGLAND  
ANGLO-FRENCH DRUG Co., Ltd.  
LONDON, ENGLAND  
ANGLO-FRENCH DRUG Co., Ltd.  
LONDON, ENGLAND

# BONE SURGERY

ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS

AS MADE FOR U. S. GOVERNMENT

NEAR BY WORKED ON ANY CURRENT AVAILABLE.



Shows a hand crank with adjustable table and hand crank.



Foot pedal is used apart or with.



Shows a foot pedal with adjustable table and hand crank.

Shows a foot pedal with adjustable table and hand crank.



Shows a foot pedal with adjustable table and hand crank.



Shows a foot pedal with adjustable table and hand crank.



Shows a foot pedal with adjustable table and hand crank.

Complete list of Fred H. Albee's Instruments, Catalogue, Boston, Mass., on Application

Manufactured by:

**DOWN BROS. LTD.,**

ENGINEERS,  
MANUFACTURERS  
OF ELECTRICAL  
EQUIPMENT

11 & 12, ST. THOMAS'S STREET, LONDON, E.C.

(Formerly 11 & 12, St. Thomas's Street)

Partners: MR. H. H. DOWN, MR. J. H. DOWN, MR. J. H. DOWN

Telephone: LONDON 1111

11 & 12, ST. THOMAS'S STREET, LONDON, E.C.

Telephone: LONDON 1111



Shows a foot pedal with adjustable table and hand crank.

No. 4

October 1919

Vol. V



Journal  
of the  
Royal Naval Medical Service

EDITED BY

SENIOR COMMANDER W. L. MARTIN, R.N.

PUBLISHED QUARTERLY

*(The Admiralty is not responsible for the opinions expressed in this Journal)*

PRINTED AND PUBLISHED BY

JOHN BULL SON & BATHURST, LTD.

LONDON: 1919

45, GREAT PORTLAND STREET, LONDON, W. 1.

PRICE SIX SHILLINGS NET

# BAIRD & TATLOCK (LONDON), L<sup>TD</sup>.

14, Cross Street, London, E.C. 1.

MANUFACTURERS OF

All kinds of Bacteriological Apparatus.



Agglutination Water Baths:

1 litre, 5 litre, 10 litre Baffles

Shaking Apparatus

## DUROGLASS.

A high resistance Borosilicate Laboratory Glassware.

(Resists 1000°C. heat.)

See 1945 Supplementary Catalogue

# Journal of the Royal Naval Medical Service.

OCTOBER, 1919.

## ORIGINAL ARTICLES.—

The Influenza Pandemic as seen at Hong Kong. By Assistant Surgeon-Generals V. D. THORPE, M.D., D.S. R.N.	193
An Outbreak of Acute Gastro-enteritis at the Royal Hospital School, Greenwich. By Assistant Surgeon P. M. HARRIS, M.B., Ch.B., D.S. and Assistant Surgeon J. H. MAX, M.B.	194
Late Recruits following the Vaccination of Her Majesty's Naval Forces. By Lieutenant Surgeon Lieutenant F. F. HARRISON, R.N.	195
Spinal Anæsthesia. By Surgeon-Generals J. GARDNER, D.S. FRCS, R.N.	197
An Inquiry into the Incidence of Appendicitis amongst Sailors. By Surgeon-Generals G. J. G. THORPE, M.D., D.S. R.N.	198

## REVISIONS.—

Thrombosis. (Ed.) By Sir HENRY SARGENT, K.C.B., M.D., F.R.C.P.	199
--	-----

## ORIGINAL AND TRANSLATED REVIEWS.—

The Atlas of the Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	200
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	201
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	202
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	203
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	204
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	205
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	206
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	207
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	208
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	209
The Human Body. By Surgeon-General V. D. THORPE, M.D., D.S. R.N.	210

## REVIEWS.—

### REVIEWS.—

Reviews of the Reports of Health.	211
Reviews of the Reports of Health.	212
Reviews of the Reports of Health.	213

## REVIEWS OF THE "NAVY" —

Reviews of the "Navy" —	214
Reviews of the "Navy" —	215
Reviews of the "Navy" —	216
Reviews of the "Navy" —	217
Reviews of the "Navy" —	218
Reviews of the "Navy" —	219
Reviews of the "Navy" —	220
Reviews of the "Navy" —	221

## INDEX.—

INDEX.—	222
---------	-----

Advertisement

# ANTISEPTICS

(CLEMENT & JOHNSON)

Trisethional allylic carbide is now supplied in the following forms:—

“Yadil” Antiseptic.

Elixir “Yadil” Antiseptic.

Unguentum “Yadil” Antiseptic.

“Yadil” Antiseptic Jelly.

“Yadil” Antiseptic may be safely applied to wounds or administered internally in large or small doses being non-toxic and non-irritant. Numerous clinical reports prove the unique value of “Yadil” preparations in gonorrhoea, pulmonary phthisis, influenza, bronchitis, pneumonia, tuberculous lesions, larynx, vulvitis, skin lesions, condylomata including mouth lesions, syphilis, erythema, diphtheria, septicaemia, cholera, bacillary dysentery, intestinal toxemia, gastric ulceration, enteritis, pyelitis, cirrhosis, haemorrhoids, eczema, severe wounds, gangrenous typhoid, acute indolent ulcers, &c.

“Yadil” Antiseptic is indispensable in all obscure septic conditions.

“YADIL” CLAIMS (L. 10241), containing reports of cases treated with Trisethional allylic carbide is published monthly and sent to every registered Medical Practitioner in the United Kingdom. On request, CLEMENT & JOHNSON will, for any reasonable fee, supply to any Officer in the Royal Naval Medical Service.

CLEMENT & JOHNSON, 19, Bedford Avenue, London, W.C.1

ALLEN & HANBURY'S LIMITED LONDON

WYNDHAM POWELL'S  
**Aero Operating Urethroscope**

English Patent



Made under the supervision of  
MR. WYNDHAM POWELL.

Observe how flexible will be any system without one which involves penetration of the  
NEW IMPROVED CANULA, as recently designed by Mr. Wyndham Powell for  
examining the URETHRA. (See Medical Notes of 7th April, August 19th, 1900)

**ALLEN & HANBURY'S Ltd.,**  
MANUFACTURERS OF SURGICAL INSTRUMENTS AND APPLIANCES  
48, Wigmore Street, London, W. 1.

## Hypodermic Medication

# "Azoule" Solutions

Sterile solutions for intraspinal, subcutaneous, intramuscular, and intravenous injection.

A complete series covers almost a wide range of treatment to the practitioner. The solutions are extremely stable being enclosed in sterile hermetically sealed capsules of hard rubber glass which is free from alkalinity and contains no organic rays.

Our complete group is complete in that "Azoule" solutions should always be at hand both for the specialist and general practitioner.



MADE IN  
AMERICA  
BY  
J. H. H. H.

MADE IN  
AMERICA  
BY  
J. H. H. H.





# LA CORONA HALF-A-CORONA



## LA CORONA HALF-A-CORONA

Cigars are the finest small Cigar  
 dipped from Havana. They can be ob-  
 tained wherever fine Cigars are marketed  
 at 100/- per 100 or 200/- per sample box  
 of 25

It are offered  
 in various  
 quantities with

WELSHONS  
 HALF A CO  
 11 Rample St  
 London E.C.1



Special Duty Free price  
 to Royal Warrant  
 80/- per 100 in bonded  
 boxes; 160/- per 100 in  
 boxes of 25

# CURTIS ABDOMINAL SUPPORT



## TO THE SURGEON

The risk of a hernia following an operation is a serious one. It is the duty of the surgeon to take every precaution to prevent its occurrence. The use of the Curtis Abdominal Support is a most effective means of preventing its occurrence.



It is the duty of the surgeon to take every precaution to prevent its occurrence.

The risk of a hernia following an operation is a serious one. It is the duty of the surgeon to take every precaution to prevent its occurrence. The use of the Curtis Abdominal Support is a most effective means of preventing its occurrence.

WALTER & CURTIS Ltd. (Incorporated in England) Specialists,  
 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.



**"Tycos"**  
**SPHYGMOMANOMETER**

The best instrument and perfect  
 arrangement for quick determination of  
 the DIASTOLIC and SYSTOLIC  
 Readings of  
**Arterial Blood Pressure.**

Accurate, small and portable.  
 Always ready for immediate use.  
 Instrument on sale previously will easily  
 pump delivery of blood column.  
 P. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

MANUFACTURED BY  
**SHORT & MASON, Ltd.,**  
 WILKINSON ROAD, WILKINSON, LONDON E.C. 4.

**"Tycos"**  
**SPHYGMOMANOMETER**

The best instrument and perfect  
 arrangement for quick determination of  
 the DIASTOLIC and SYSTOLIC  
 Readings of  
**Arterial Blood Pressure.**

Accurate, small and portable.  
 Always ready for immediate use.  
 Instrument on sale previously will easily  
 pump delivery of blood column.  
 P. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

MANUFACTURED BY  
**SHORT & MASON, Ltd.,**  
 WILKINSON ROAD, WILKINSON, LONDON E.C. 4.

# MACMILLAN'S LIST.

**Fibroids and Allied Tumours (Myoma and Adenomyoma)**

By J. B. CRISP, M.D., F.R.C.S., Lecturer on Gynaecology, St. Mary's Hospital, London.

8vo. 12s. 6d. (hbk.) 15s. 6d. (pbk.)

The English medical journal

**Diseases of the Arteries, including Aneurysm, Pericardium,**

By J. B. CRISP, M.D., F.R.C.S., Lecturer on Medicine, St. Mary's Hospital, London.

8vo. 12s. 6d. (hbk.) 15s. 6d. (pbk.)

**The New System of Gynaecology**

By J. B. CRISP, M.D., F.R.C.S., Lecturer on Gynaecology, St. Mary's Hospital, London.

8vo. 12s. 6d. (hbk.) 15s. 6d. (pbk.)

The English medical journal

**On Longevity and Means for the Prolongation of Life**

By J. B. CRISP, M.D., F.R.C.S., Lecturer on Medicine, St. Mary's Hospital, London.

8vo. 12s. 6d. (hbk.) 15s. 6d. (pbk.)

MACMILLAN & Co., Ltd., LONDON W.C.2



## "Newman" Disinfecter

Patented, Patent No. 4034

**UNIQUE PORTABILITY and EFFICIENCY**

**Simplicity of Construction and Management**

**Low Initial Cost and Economy in Use**

**Hundreds already employed at the Front**

When erected measures 4ft. 6in. by 4ft. 6in.  
by 180 gals. high.

When Folded for Transport, 4ft. 6in. by 4ft. 6in.  
by 180 gals.

By J. B. CRISP, M.D., F.R.C.S., Lecturer on Medicine, St. Mary's Hospital, London.

The London Warming and Ventilating Co., Ltd.

Engl. 1891

10 NEWMAN ST. KINGSWAY LONDON W.C.1

## *Dist to Convalescence*

The supreme value of Ovaltine for building up and toning the system after operations or periods of illness or in default of other resources is generally recognised by leading Hygienists and Convalescent Homes.

# OVALTINE

Special packages are available in handy reduced rates for voluntary or non-supported institutions. For home or parish use or for free supplies for local purposes apply direct to the manufacturers —

**W. WAGNER & CO., Ltd.,** 10, Cannon St., London E.C. 4.  
(Incorporated in England)

**CHAS. HEARSON & CO., Ltd.,**  
— 233, REGENT STREET, LONDON, W. 1.

WAR OFFICE  
PATENT  
WAGNER & CO.  
LONDON  
S. 4, 1 & 12  
TRAY



HEATED BY  
GAS, OIL,  
OR  
ELECTRICITY.

Complete Catalogue of Bacteriological, Pathological and Chemical Apparatus sent on application.

Solely of Success: **MR. WILLOW WALK, BIRMINGHAM, LONDON S.E. 1**

# H. K. LEWIS & Co. LTD.

Telephone: PATERNOSTER SQUARE LONDON

Telephone: BOSTON 101

## MEDICAL PUBLISHERS & BOOKSELLERS.

COMPLETE STOCK OF TEXT BOOKS AND SCIENTIFIC LITERATURE

— IN ALL BRANCHES OF MEDICINE AND SURGERY —

ORDER BY POST OR TELEPHONE PROMPTLY ATTENDED TO

### Medical & Scientific

Write Book Form,  
All Lists, Orders

### Circulating Library.

*Approved Publications: Texts and Dictionary, Gas, Gases*

*By THE LANCET, MEDICAL OFFICERS, MEDICAL SOCIETY*

**LIBRARY CATALOGUE** with Index of Subscriptions and Numbers, revised  
24 December 1917. Bound 40s., 400 pp. 1918 and its Subscriptions do. 20s.

136 GOWER STREET and 24 GOWER PLACE, LONDON, W.C. 1.

GOLD MEDAL

LONDON 1903

THE NON-IRRITANT  
LOCAL ANÆSTHETIC

**NOVOCAIN**

DOES NOT CONTAIN COCAINE.  
*The original preparation as supplied by us  
for the past 22 years*

THE SACCHARIN CORPORATION LTD.  
Pharmaceutical Department  
28 OF GOWER STREET, CHEAPSIDE, LONDON E.C. 4

## Dental Equipment for Army, Navy, Hospital, Clinic, The Practice.



A Division of The Dental Manufacturing Co. Ltd.

**The Dental Manufacturing Co. Ltd.** LONDON, W. 1.  
 BRANCHES: Manchester, Newcastle, Leeds, Glasgow, Dublin, New York, Mexico.

**A Speedy and Reliable Sterilising Agent.**

A very convenient means of rendering the use of an expensive and large domestic appliance, such as the subject's hand and instrument wash, economy in time and labour is provided by

**GERMICIDAL SOAP—MCDONALD.**

The soap contains powerful disinfectants which render the hands clean and not only so, but also sterilised and germ-free. The soap is used in the form of a thick lather, which is then rinsed off with water, leaving the hands clean and free from all germs.

The soap is sold in boxes of 100, 500, and 1000 bars. It is also sold in bulk, and is available in all quantities. It is sold in all parts of the world, and is the most reliable and efficient disinfectant and germicide available.

**PARKE, DAVIS & CO.,** LONDON, W. 1.

# OMNOPON

TRADE MARK



## *An Efficient Sedative*

ROCHE

THE TOTAL NUMBER OF DOSES IS NEARLY TWICE

THAT OF *Scopolamine* *Acidobutyl*

IN EQUIVALENT OF EFFECT

SCOPOLAMINE PREPARED BY THE ROCHE

LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE

SCOPOLAMINE PREPARED BY THE ROCHE

LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE

SCOPOLAMINE PREPARED BY THE ROCHE

LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE

SCOPOLAMINE PREPARED BY THE ROCHE  
LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE

SCOPOLAMINE PREPARED BY THE ROCHE  
LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE



THE  
ROCHE LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE  
SCOPOLAMINE PREPARED BY THE ROCHE  
LABORATORIES, 100, RUE DE LA PAIX, PARIS, FRANCE

**MORE THAN A POULTICE**  
**MOIST HEAT**  
**PLUS**  
**HYGROSCOPIC—ANTISEPTIC**  
**OSMOTIC ACTION**

---

One unique feature about *Antiphlogistine* as compared to all other applications of moist heat, is its hygroscopic and osmotic power—the power to take into itself the products of inflammation.

Another peculiar feature about *Antiphlogistine* is its marked thermal property. When the wettery molecule heat on inflamed area comes in contact with hygroscopic glycerine, as contained in *Antiphlogistine*, heat is produced. As long as there is osmotic action there is found to be the resultant heat. Hence an application of *Antiphlogistine* may remain warm for 24 hours or even longer.

*Antiphlogistine*

is indicated whenever and wherever inflammation plays a part.

---

THE DENVER CHEMICAL MFG. COMPANY  
NEW YORK



## NOVARSENOBILLON

For Intravenous or Intramuscular Injections  
in the Treatment of

*Syphilis, Recurrent Fever*  
AND OTHER SPIROCHETAL INFECTIONS

Novarsenobillon is an excellent blood steriliser, and  
exerts efficient curative action on the organism causing it.  
The M.P. is 42° C. It contains 100 mgm. Arsenic  
and 100 mgm. of Bismuth. It is available in 100 mgm.  
and 200 mgm. ampoules. Price 1/6 per 100 mgm.

Manufactured in Great Britain, under licence and control of the Board of Trade.

For further details apply to the nearest branch.

**MAY & BAKER, LTD.**, Manufacturing Chemists  
BATTERSEA, LONDON S.W. 11



**BENGERS**  
**Food**  
for **INFANTS,**  
**INVALIDS & AGED.**  
Benger's Food is a pure food made from the best of milk and wheat. It is the most perfect food for infants, invalids and the aged.

**VAN, ALEXANDER & Co.,**

THE  
ADVERTISEMENT AGENTS  
FOR  
MEDICAL AND NURSING  
JOURNALS

25, Cannon Street, W.C.2  
Telephone: CENTRAL 910

## Cassia Bearensa

(New) 1900-1901-1902

INTRODUCED BY

## BLACKWATER FEVER

It is a new and powerful  
antiseptic and disinfectant  
for all purposes.

The dose is from 10 to 20 grains.  
It is a new and powerful  
antiseptic and disinfectant  
for all purposes.

THOS. CHESTNUT & CO.,  
10, NEWBURY STREET, LONDON, E.C.4.

PRICE OF CASSIA BEARENSA

PER OUNCE 3/6 PER BOX

## ALL REACTIONS of the Body Fluids and Tissues are COLLOIDAL

COLLOSOLS are pure and stable colloidal solutions consisting entirely and exclusively with the elements of the body

CROOKES'

# COLLOSOLS

COLLOSOLS are tested by ultra-microscope, bacteriologist, and chemical experiment

## COLLOSOL SULPHUR

This Colloid is of great therapeutic value in Eczema, Indigestion, Intermittent, Nervous and in Diseases of the skin such as the scurfy Diseases, Acne, Eruptions, Itch and Rheumatism

Colloid Sulphur is recommended as a substitute for the Sps treatment of such affections where Sps treatment is available but is a replacement of Sps in cases of eruptions as Sps may be followed up by the Colloid Sulphur should relapse occur

The patients who are unable to take a course of Sps treatment permanently will find Colloid Sulphur suitable

It is prepared in two different forms—the external use and bath treatment for external eruptions for eruptions and eruptions with which the internal part is greatly affected. Use as usual for the body

For evidence of the therapeutic efficacy of Colloid Sulphur the medical profession is referred to the "Annals" Report of a Committee of the British Association for the Advancement of Science recently published on behalf of the Department of Science and Technical Research pp. 2045

## COLLOSOL MANGANESE

For the treatment of Diphtheria, Croup and other Croup Infections Also for the treatment of Anemia from Anemia (Medical Journal, Laid 2nd 1914, pp. 1140)

Use the following COLLOSOL Preparations —

ARGENTUM, CUPRUM, FERRUM,  
HYDRARGYRUM, IODINE, PALLADIUM.

Particulars, Literature and Reports from

## THE CROOKES' LABORATORIES,

22, CHANCERY STREET, TOTTENHAM COURT ROAD,

W.C.2.

Telephone: 4000, 4001 and 4002

# HYPODERMIC AND SERUM SYRINGES



"Concord" Complete  
No. 100 110 120 130 140 150 160 170 180 190 200



"Army" Pattern  
No. 100 110 120 130 140 150 160 170 180 190 200



"10-Stroke" Complete  
No. 100 110 120 130 140 150 160 170 180 190 200



Needles  
No. 100 110 120 130 140 150 160 170 180 190 200



"All Metal" Complete  
No. 100 110 120 130 140 150 160 170 180 190 200



"All Glass" Complete  
No. 100 110 120 130 140 150 160 170 180 190 200

NEW BARREL FITTED TO YOUR PRESENT "CONCORD" SYRINGE  
No. 100 110 120 130 140 150 160 170 180 190 200



No. 1000



No. 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000

No. 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000

No. 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000



No. 1000

SEND FOR CATALOGUE will be sent free on application



THE  
SURGICAL  
MANUFACTURING  
CO., LTD.

**THE SURGICAL MANUFACTURING CO., LTD.,**

Supplied Instruments and Materials to the War Office, etc.

83-85, MORTIMER STREET, LONDON, W. 1

AND AT  
8 PARK QUADRANT GLASGOW

## Four Standardised Synthetics of Unique Value.

**SANATOGEN.**—The most important body food, especially, such as protein and phosphate in such a manner that both are fully and easily assimilated. It is supplied both as an adjunct to the various systems and as a body building, stimulant. See Sanatogen Co., Ltd., 10, Pall Mall, London, W.1. (Litho—Lithographically printed and lithographed.)

**FORMAMINT.**—The most rapidly absorbed and shortest acting laxative. It is the best for the relief of constipation without harmful effects. It is composed of all forms of material from the most refined and purest sources of the natural source. It is a prophylactic against intestinal diseases such as typhoid, cholera, dysentery, diarrhoea, etc.

**GENASPRIN.**—The leading brand of aspirin, synthesized by the standard process, aspirin is pure, white, and will retain its purity under all conditions. It is the only substance which is of therapeutic value. It is the only standard substance which is of therapeutic value. It is the only standard substance which is of therapeutic value. It is the only standard substance which is of therapeutic value.

**CYSTOPURIN.**—The standard brand of aspirin, synthesized by the standard process, aspirin is pure, white, and will retain its purity under all conditions. It is the only substance which is of therapeutic value. It is the only standard substance which is of therapeutic value. It is the only standard substance which is of therapeutic value. It is the only standard substance which is of therapeutic value.

## GENATOSAN, Ltd.

(Incorporated in the Netherlands)

25, Abchurch Lane, London, E.C. 4. (Telephone: The National Bank)

[illegible]

# DETOXICATED VACCINES

**Keywords:** child sexual abuse; disclosure; disclosure strategies

## INFLUENZA

Age group	Percentage of respondents
18-24	10
25-34	25
35-44	45
45-54	65
55-64	80
65+	85

## BRONCHIAL AND NASAL CATARRHS.

From these percentages, table 14, Harvey showed a more substantial (or at least a little) less disappointing trade and he appeared on the results, clearly showed such determined

By this time virtually the entire sea consisted of ice-covered ridges and valleys, suggesting the appearance of some glacialation. From 100 to one hundred years before this time, a very low sea level is expected with the result that much greater amounts of sediment, with boulders, are deposited.

During the German occupation (1940-1945) about 1.5 million Jews were murdered in the occupied territories, a process in a sense of *genocide*, followed by one of 500,000. No reconstruction was carried beyond some local reforms and improvisations, and no influence on students increased almost too very small extent. (Note: I do not know any 1)

In both the treatment and possession of such violence, it is important to understand and define them. Beginning, therefore, may considerably simplify the already somewhat large class of depressed delinquency. Various authors, of course, of Florida, describe. Hirschi's delinquency (Petersen, 1981; Garbarino, 1981; Fendley, 1981; Saxe, 1981; and Fendley, 1981).

Electrostatic forces may have been associated with available surface on gamma rays. There is some danger in assuming that the ions, dust and light, as per techniques used at the time, are the

11. *Journal of the American Medical Association*, 273, 1995, 1033-1034.

© 1994, TIGLAP LTD. (the character of Kung-Fu Monkey is a registered trademark of TIGLAP LTD.)  
 in Canada from: London, W.C.B. 1A1 1A1, Canada. The TIGLAP LTD. logo is a registered trademark of TIGLAP LTD.

# GENASPRIN

*Form of acetyl salicylic acid*

Pat. 2,474,242, April 1, 1950

## GENASPRIN

LESLIE & CO., LTD., 10, CHANCERY LANE,  
LONDON, W.C. 2

The purity of acetyl-salicylic acid is of importance if an effective solution is required to be obtained until the drug reaches the alkaline intestinal juice. We found neither free salicylic nor acetic acid in this preparation.

The tablet disintegrates rapidly in water and gives absolutely no visible coloration with ferric chloride. On addition of 2 per cent hydrochloric acid, representing the acidity of the gastric juice, there is still no response to the iron test, slight hydrolysis only taking place after several hours. This shows conclusively that this preparation is a particularly pure specimen of acetyl salicylic acid.

*On receipt of your professional order, we will send abundant chemical samples.*



Optim. Made in London, England, Eastern Africa

**TONIC.** **Huxley's**  
**Syrup of Glycero-Phosphates**  
With the Acid **FORMATES**

This is a most valuable tonic, and is especially adapted for the treatment of all cases of debility, and is particularly useful in the treatment of the following diseases:—  
Anæmia, Chlorosis, Dyspepsia, Indigestion, Neuritis, Paresis, Paralysis, Rheumatism, Scrophulous Affections, Strabismus, Tinnitus, Tremor, Vertigo, and all cases of general debility, and is especially adapted for the treatment of the following diseases:—  
Anæmia, Chlorosis, Dyspepsia, Indigestion, Neuritis, Paresis, Paralysis, Rheumatism, Scrophulous Affections, Strabismus, Tinnitus, Tremor, Vertigo, and all cases of general debility.

**ANTISEPTIC** **Huxley's**  
**SAL-ANTISEPTICUS.**

This is a most valuable antiseptic, and is especially adapted for the treatment of all cases of infection, and is particularly useful in the treatment of the following diseases:—  
Anæmia, Chlorosis, Dyspepsia, Indigestion, Neuritis, Paresis, Paralysis, Rheumatism, Scrophulous Affections, Strabismus, Tinnitus, Tremor, Vertigo, and all cases of general debility.

**ANALGESIC** **Huxley's**  
**Menthol and Wintergreen Cream.**

This is a most valuable analgesic, and is especially adapted for the treatment of all cases of pain, and is particularly useful in the treatment of the following diseases:—  
Anæmia, Chlorosis, Dyspepsia, Indigestion, Neuritis, Paresis, Paralysis, Rheumatism, Scrophulous Affections, Strabismus, Tinnitus, Tremor, Vertigo, and all cases of general debility.

**Anglo-American Pharmaceutical Co., Ltd.**  
GALLEN WORKS,  
24, Dingswall Road, East Croydon (London)

**THE MEDICAL SUPPLY ASSOCIATION, Ltd.,**

187-189, Gray's Inn Road, London, W.C.1.

BRANCHES: GLASGOW, SHEFFIELD, CARDIFF, DUBLIN and BELFAST

**THE IMPROVED STETHOSCOPE**  
FOR AUSCULTATION



Combining the ordinary Chemozo and Phonendoscope.  
PRICE PER PAIR 15 S.

APPARATUS FOR THE THERAPEUTIC ADMINISTRATION OF

**OXYGEN.**

SOLE MAKERS OF G. J. & S. HALLAM'S PATTERNS

1891

**BREATHING APPARATUS, RESPIRATORS, &c.**

FOR PERIODIC GASES.

**Scientific Apparatus of all Descriptions**

IN METAL, RUBBER, GLASS &c.,  
for Research and Experimental Work

OXYGEN SUPPLIES of every Description

**SIEBE, GORMAN & CO., LTD.,**

NETFUNE WORKS, & 101 WESTMINSTER BRIDGE ROAD  
LONDON S.E.

Telephone 2000. Cable Address: Siebe Gorman.

Telegrams: Siebe Gorman Ltd. Cable Address: Siebe Gorman.



# ECZEMA and other forms of Skin Disease.

"SPRANGOL SOAP TO MY MIND HAS NO EQUAL AND  
AS REGARDS THE OINTMENT, IN ALL SKIN DISEASES,  
EVEN CONSTITUTIONAL, IT ACTS LIKE A CHARM."

SPRANGOL is a standard of pure precious saponin and healing properties  
and the SPRANGOL SOAP AND OINTMENT are regularly used  
in Hospitals and prescribed by Practitioners.

Write for full particulars to the following:-

DEAT PRODUCTS (SPRANGOL), LTD., 1, Market Street, London, E.C. 1.

## OUR CONSTANT STAFF

### THE NEEDS OF THE DENTAL PROFESSION

Our staff of experts are constantly at work on the latest developments in dental science and practice, and are always ready to advise on the most efficient methods of treatment.

Maximal Teeth and Porcelain Onlays  
Workroom Tools and Appliances.

Dental Benders.

Hand Instruments.

Process Metals.

Anaesthetic Apparatus.

Filling Materials.

Sandwiches. Books.

Extracting Forceps.

Electrical Apparatus.

Operating-Room Furniture.

Engines and Engine Instruments, etc.

We would welcome you to our premises, and we would be pleased to supply you with all the latest developments in dental science and practice, and we would be pleased to advise you on the most efficient methods of treatment.

CLAUDIUS ASH, SONS & CO., Limited,  
212 Strand Street, Covent Garden, London, W.C. 2, England  
(Established 1885)

# **E. & S. LIVINGSTONE**

Notary Public

in the State of New York

## **THE FOLLOWING BOOKS IN PREPARATION SUBJECTS PREPARED**

JUST OUT

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

1900. 1200 pp.

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

Preparation of New Books in the following order. Being now in the hands of the printer.

## **THE FOLLOWING BOOKS PREPARED**

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

**THE NEW YORK CITY DIRECTORY**  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000  
 1900. 1200 pp. 1000 illustrations. 1000

## **CONTENTS OF THE DIRECTORY**

1. The City of New York. 2. The County of New York. 3. The State of New York. 4. The United States. 5. The World. 6. The Universe. 7. The Cosmos. 8. The Earth. 9. The Sun. 10. The Moon. 11. The Stars. 12. The Planets. 13. The Comets. 14. The Meteors. 15. The Clouds. 16. The Rain. 17. The Snow. 18. The Wind. 19. The Thunder. 20. The Lightning. 21. The Earthquake. 22. The Flood. 23. The Fire. 24. The War. 25. The Peace. 26. The Love. 27. The Hate. 28. The Joy. 29. The Sorrow. 30. The Hope. 31. The Fear. 32. The Faith. 33. The Charity. 34. The Wisdom. 35. The Power. 36. The Wealth. 37. The Honor. 38. The Glory. 39. The Fame. 40. The Reputation. 41. The Influence. 42. The Authority. 43. The Jurisdiction. 44. The Dominion. 45. The Sovereignty. 46. The Supremacy. 47. The Primacy. 48. The Preeminence. 49. The Eminence. 50. The Nobility. 51. The Nobility. 52. The Nobility. 53. The Nobility. 54. The Nobility. 55. The Nobility. 56. The Nobility. 57. The Nobility. 58. The Nobility. 59. The Nobility. 60. The Nobility. 61. The Nobility. 62. The Nobility. 63. The Nobility. 64. The Nobility. 65. The Nobility. 66. The Nobility. 67. The Nobility. 68. The Nobility. 69. The Nobility. 70. The Nobility. 71. The Nobility. 72. The Nobility. 73. The Nobility. 74. The Nobility. 75. The Nobility. 76. The Nobility. 77. The Nobility. 78. The Nobility. 79. The Nobility. 80. The Nobility. 81. The Nobility. 82. The Nobility. 83. The Nobility. 84. The Nobility. 85. The Nobility. 86. The Nobility. 87. The Nobility. 88. The Nobility. 89. The Nobility. 90. The Nobility. 91. The Nobility. 92. The Nobility. 93. The Nobility. 94. The Nobility. 95. The Nobility. 96. The Nobility. 97. The Nobility. 98. The Nobility. 99. The Nobility. 100. The Nobility.

Printed by E. & S. Livingstone, 1000 Broadway, New York, N.Y.

# Journal

of the

## Royal Naval Medical Service.

### Original Articles.

#### THE INFLUENZA EPIDEMIC IN SHIPS AT SEA IN 1917.

BY CAPTAIN H. C. HARRISON, R. N., D. L. S., D. M. S., D. S. S.

Lecturer in Hygiene, R. N. School of Hygiene, London.

The hospital ship *Agamemnon* only had a few mild cases of influenza during the May 1917 epidemic among her own ship's company. The report refers to the last two waves of the epidemic when the ship admitted numerous cases. If the statistics of cases admitted weekly during this period is studied, though the period between the two definite waves of influenza is indicated by a noticeable fall drop in the number of cases it is seen that influenza was persistent at times for the whole six months—October 1916 to March 1917.

For purposes of description the cases have been divided roughly into three groups—Class A. Those patients whose lung signs were not very evident, cases with just a few crackles in spots at the bases, or rattle like cough not included in that class. B. Those showing lung signs. C. Fatal cases still broncho-pneumonic.

Class A, nonfatal 955 cases	17 per cent.
B.                   64	17 " " " " " "
C.                   35	17 " " " " " "
Total cases       1054	100 per cent.

From these figures it will be seen that the total case mortality was 1 per cent., a quarter of the cases developed lung complications and a quarter of the latter died. The average run of cases was not so severe as those seen in shore hospitals, but more severe than those treated on ships. Ships which carried a medical officer only tend, their worst cases to the *Agamemnon*, whereas ships and coastguard cutters, having a medical staff and all classes of men including the very sickly.



Observations on the Temperature of the Body



The normal variation in passing its average and minimum level. Apparently, pulmonary disease accompanied the temperature fall. When in the pulmonary stage, the temperature fell and stayed low for days, even with all attempts to raise it. In the convalescent stage, in the fatal branch, pulmonary death generally came some three or four days later. Two cases, however, appeared to remain just on the verge of death, only to die—the one of cerebral shock, the other of shock, both being called so. Two fatal cases in which pulmonary disease probably was a secondary cause of death are not included here, as they had appeared on the other (lymphatic) side of the spectrum. These cases, I figure below in the light of temperature and its duration.

Types of Temperature Curves (See Chart 1, p. 202)

I start with the common occurrence of temperature fall (Chart 1, type 1) and now long years speak for a fall. A definite drop occurred within a few hours of over two degrees, observed in 12 per cent of cases in which pulmonary signs were not evident, and 21 per cent in the cases terminated in same. (See Chart 1, type 1) For the pulmonary cases, then, the drop appears to be the commonest immediate response and the cause of so many cases was probably due to pulmonary infection. Another type of temperature chart was too common to be overlooked. There was the saddle-back temperature in which the temperature starts high for a day or so, falls to a deep only to rise again before it is really normal. (See Chart 2.) This type of pulmonary cases often followed further involvement of the lungs, and the animal was associated with the appearance of signs in a previously clear case. In saddle-back temperature cases were an infection, or non-pulmonary cause. I put such an example in Chart 2, type 2. These were not infrequently the case with only one or two days' high temperature dropping, straight to normal on the second or third day. Chart 3 is the case starting high and dropping, perfectly regularly

is normal or high on the first 4 to 6 days (usually 4 days) following conception, and is not necessarily high, especially prevalent or prolonged (Chart 1).

#### Palpated Heart

The following table summarizes well known characteristics of abortion in the following table, based on what extent it occurred in the 4 days after

		Days 4-6	Days 6-8	Days 8-10
Carcasses showing no pulse at all...	40-50	11 (15 per cent)	42 (14 per cent)	52 (14 per cent)
Carcasses showing a pulse at all...	50-60	147 (51 per cent)	258 (86 per cent)	317 (80 per cent)
Total cases with pulse before 60		158 (79 per cent)	299 (86 per cent)	369 (90 per cent)

Thus over two thirds of the cases both lung and pneumonia had during early convalescence, a pulse rate per minute in the fetus as high as. In the lung cases very few pulse rates were so constant, often tending to show the tachycardia so due to the specific response of abortion, and it resulted to some extent by the secondary infection and the resulting cardiac stress due to pulmonary disease. The number of heart beats during with the temperature and are generally lower than in normal, after the temperature has reached the normal (See various charts.) The comparatively smaller normal hearts within a heartbeat has been proved larger. A few cases developed tachycardia and variable heart during convalescence, and from what time is wrong now (Chart 1947), duration of abortion and frequency develop frequently are a late report to influence when a new system to work. At the onset of the disease the pulse may be rapid but within 4 days even during the lethal period is a lower rate than normal with the corresponding temperature. (See various charts.)

#### Respiratory Rate

The respiratory rate was frequently the first obvious sign of involvement of the lungs and a sudden increase in it in a case already definitely pulmonary, sometimes gave indications of a lethal event before any change occurred in the pulse. A respiratory rate of over 30 per minute usually always indicated broncho-pneumonia. In the 50% cases without abortion, lung signs only 4% per cent were had a respiratory rate of over 30 (Chart 2). About 40 cases with lung signs 45 (47 per cent) at one time or another were breathing over thirty times a minute. In the fatal broncho-pneumonia rate of 60 was sometimes maintained for a day or more before death. In lung cases, where the respiratory rate was low, the signs were generally bronchial rather than pneumonia.

## RESULTS.

The results occurred in the series as follows:

Case A	Case B	Case C
100 cases (100 per cent.)	34 cases (33 per cent.)	100 cases (100 per cent.)

Therefore the likelihood of aluminum in the series is approximately 100 cases per cent. (total of 100 cases) as 1 : 1 : 3, which is a rough indication of the proportion value. In most cases the aluminum was present in a trace, and acids were seldom found. In only five cases which occurred was it noticeable (over 500 per cent.) and all of these cases in Case B. In seven of the 1000 cases aluminum was noticeable. The aluminum seemed to be due to a basic parathyroidism, as calcium in blood was never found and other signs of metabolic alkalosis, headache and vomiting were absent. Cells, chiefly of the epithelial variety, were abundant in the connective-tissue spaces. In the fatal cases the highest concentrations were 1.6 per cent., 1.6 per cent., and 1.2 per cent. Massive aluminum by no means indicated a fatal termination. The highest aluminum figures were from cases that occurred.

In the four cases of massive aluminum that occurred, the highest aluminum in each case were respectively 1.6, 1.6, 2.2 and 1.6 per cent. These four cases were all bronchopneumonia and gastric gastric of connective tissue. Therefore one case is described at length and a short series of temperature and actual amount of aluminum passed in twenty four hours. What is said about this case applies with practically equal force to the other three.

Female of Marston, aged 30. Admitted November 1, 1939. Onset of illness on October 30, 1939. Headache and vomiting. Sputum blood stained. Rapidly all over chest and signs of consolidation at both bases. Leucocytes count 12,700 on November 7 at height of fever. 7,000 on November 9 the day temperature fell. 12,500 on November 10 when temperature rose. Bacteriologically: *Streptococcus pneumoniae*, *S. pneumoniae* and *paratyphoid* present in sputum. No culture. Blood pressure 100 mm. of mercury. Urine killed with aluminum for about a week contained trace of all the signs (especially epithelial) with little deviation in other respects from the normal. Specific gravity ranged 1.012-1.040 (average 1.020). Daily average amount of urine was 400 c.c. The albuminuria disappeared in two days. From the appearance of the chest one might almost say it was a lobar pneumonia, and the pneumonitis grew from the outside into the chest. The duration of all other signs of lobar pneumonia, the subsequent rate of disappearance of the aluminum when it had been once as high as 1.6 per cent. I think make this very unique. (See Chart I.)

## OTHER CASES.

Specimen was fairly parathyroid. It was noted among 71 of the 1000 cases, and 30 per cent. of the lung cases, and in 7 of the 35 fatal cases. I do not think it had much prognostic value though it did cover more frequently in the fatal cases. Including all cases it was noted in 33 per cent.

Remarks.—An acute with gastric ulcer and acid gastric aspirated blood





these and others for some 2000 days at partial (10-15 per cent) oxygen (2000) without showing the appearance of definite physiological distress.

It was found necessary to substitute for the dead guinea-pig some animal (guinea-pig, guinea-pig, and sheep) and to substitute for the guinea-pig some 2000 days at partial (10-15 per cent) oxygen (2000) without showing the appearance of definite physiological distress.

#### RESULTS

Definite evidence was present in some cases (cases 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100) that the guinea-pig was able to survive for some 2000 days at partial (10-15 per cent) oxygen (2000) without showing the appearance of definite physiological distress.

#### DISCUSSION

It is very interesting to note that the guinea-pig was able to survive for some 2000 days at partial (10-15 per cent) oxygen (2000) without showing the appearance of definite physiological distress.

#### THE HUMAN FACTOR

The blood picture of the guinea-pig was not very different from that of the human. The leucocyte count is not very constant, but there is a marked leucopenia in some cases, and it would seem that the normal range of leucocytes depends on the cellular response of the blood to the various factors of the environment. A leucopenic response is seen with a variety of factors, and in the present case the cellular response of the blood to the various factors of the environment was not very different from that of the human.

Inspection of the figures shows that a leucopenic response is seen in all cases of all ages, and that in fact, even in the present case, a leucopenic response is seen in all cases of all ages. It is interesting to note that the leucopenic response is seen in all cases of all ages, and that in fact, even in the present case, a leucopenic response is seen in all cases of all ages. It is interesting to note that the leucopenic response is seen in all cases of all ages, and that in fact, even in the present case, a leucopenic response is seen in all cases of all ages.

Leucopenia is the reverse of white cells in all cases of all ages of all ages. It is interesting to note that the leucopenic response is seen in all cases of all ages, and that in fact, even in the present case, a leucopenic response is seen in all cases of all ages.



On the febrile period terminated, the white count went up very quickly to normal or above normal levels (see Chart 2) in which the polymorph count is superimposed on the temperature chart as a dotted line.

#### THE DIFFERENTIAL COUNT

In my experience on all the common febrile diseases which may be accompanied by a leucopenia, the differential counts given among the polymorphs have a tendency toward a relative lymphocytosis. Thus, the curve in the various groups, Mediterranean fever, typhus and typhoid fever, all become very liable to be confused with influenza during an epidemic. Hence the value of the percentage of the differential differential count, which I wish to emphasize.

In influenza the differential counts taken place among the lymphocytes, or at least they are reduced in number to the same extent as the neutrophils cells, so that the differential count shows a relative lymphocyte leucopenia instead of a lymphocytosis, as occurs in all other common leucopenias. So striking is this observation in my mind that I consider a leucopenia accompanied by a relative polymorphonuclear leucocytosis as practically pathognomonic of epidemic influenza. The absence of this characteristic, of course, does not exclude influenza.

To give an idea to what extent the relative number of polymorphonuclear cells are increased in influenza, an study on 100 differential counts is given. A second column is included which gives the same information when limited to those cases in which the total white count was under 10,000 cells per cubic millimeter.

Percentage of polymorphonuclear cells in differential count	Number of cases	Percentage of cases in which the relative number of cells total per 1,000
Over 90 per cent.	2	1
85—90	20	15
80—85	20	15
75—80	25	12
70—75	11	6
65—70	2	3
Total count	100	11

The actual percentage of polymorphonuclear cells in the differential count of the value is lower than the actual number given in the first column. It naturally tends to be more 90 per cent. than 65 per cent. Therefore

3 per cent. of these cases had a definite increase or at least an increase over the "relative" number of polymorphonuclear cells in their blood and 70 per cent. had over 70 per cent. of the circulating white cells polymorphonuclear. Leucopenia made no difference as 65 per cent. with definite leucopenia of the total white cells had over 70 per cent. polymorphonuclear in the blood. There is nothing to note about the large

concomitant count. In only ten cases was this count over 10 per cent. The highest was one seen with 20.0 per cent, which makes the highest cell surface area, emphasized by a long past history of extreme leucopenia; in, generally absent, in reference, they were never increased cell count, was no other blood changes during the study period.

In view, since the term of leucopenia known as. This is a reticulocyte count. Among these cases, however, where the cell was spread, looked on and is not in blood. Under conditions with 100 per cent. In a total count, however, as a per cent. of these cells were among the white cells; that is, the highest count of these cells I have ever seen. In a few cases, I was very puzzled by peculiar black granules in the polymorphonuclear leucocytes, with a like dense granules in the case of neutrophils, in my case. It could be found in the appearance, it was attributed to some anomaly of staining technique. Microscopically, I was reading the Medical Supplement of the Journal of the Eastern Press, March 1931, p. 121, and I had then seen, however, has been recorded by Adkins. Probably these black granules were pathologic, in origin, so I suggest I did not study them on the cases where it is, from more than ought.

#### DISCUSSION

It much has been written and so many better produced of both of various cytophytic and pathogenic bacteria found in the system of reference cases that it is mostly sufficient to say that in the. Again, the experience was partially the same. The commonest bacterial infection was pneumococcus. All places were not seen commonly in the system. Almost every common organ site was found at one time or another including *B. typhosa*, *typhosa*, bacilli and meningococcus. There was however, in my experience, one constant fact about the histology of these cases. That was that provided a satisfactory media was used and sufficient results taken. *B. typhosa* (Pfeiffer, bacillus) could be recovered from the smears of organs of most cases in the early, middle period (roughly in the cases examined with sufficient care). This led to my mind some conclusion that the so-called infection bacillus would have something to do with the strategy of pathogenic infection even if it is not the sole cause of it. The "two phases" described by many, sequential similarities we most probably are of three things: (1) Aerial count organisms in specimens with *B. typhosa* a. (2) a form of *B. typhosa* itself, which is a most pleomorphic organism and in old cultures shows a greater degree (cell shape) which might well pass a filter. (3) a secondary infection analogous to the typhoid and pneumococcus are commonly found in pathogenic infections.

**Blood Culture**—In many cases of chronic infection, usually the most common pneumococcus and other cases, with high counts often, an attempt was made to remove a massive organism from the blood. Their case

concluded to be the most useful tool for testing the types of justifications, and was later used, as given, for testing comparisons between comparisons in the 20 experiments. Since in the 10 HIRN conditions the type of justification was varied, and since there is a substantial literature on the effects of various justifications, it was decided to use only one type of justification in the 10 HIRN conditions.

In an additional series of 20 experiments, subjects had to give the HIRN of a statement which they considered false, and which they considered to be the HIRN of a statement which they considered to be true, while they gave a justification. In this series, half of the subjects were given different types of justifications.

There are two places where comparisons are made. In the first, subjects had to judge whether slightly different statements were equally true, or more true, or more false, and then give a justification. In the second, when explanations were given, the subjects had to judge whether the explanation was better than the other two explanations. The second comparison was made in a more complex way, based on an analysis of the explanations, as will be seen below.

Summarizing the HIRN and the comparisons, the 20 experiments were carried out in three, and changes were made twice.

The purpose of the experiments in the first phase of the project was to determine where comparisons were made. Having this information, the next step, and it was equally a matter of logic, was to determine the effects of the justifications on the following, with analyses:

Exp. 1-10	10 subjects, 10 conditions, 100 comparisons	Exp. 11-20	10 subjects, 10 conditions, 100 comparisons
Exp. 1-10	10 subjects, 10 conditions, 100 comparisons	Exp. 11-20	10 subjects, 10 conditions, 100 comparisons
Exp. 1-10	10 subjects, 10 conditions, 100 comparisons	Exp. 11-20	10 subjects, 10 conditions, 100 comparisons
Exp. 1-10	10 subjects, 10 conditions, 100 comparisons	Exp. 11-20	10 subjects, 10 conditions, 100 comparisons

Some of the measures in these were also compared with regard to the presence of errors (if subjects were wrong, then:

2 times correct	100 correct (100%)	Percent correct	100
10	70 correct (70%)		70
10	50 correct (50%)		50

In HIRN, however, by the counting of wrong HIRNs and by a series of HIRN comparisons, subjects, and not the justifications, made the comparisons. The HIRN had not returned to the original condition in over a month.

It may be argued from the above that the purpose of the experiments in the second phase of the project was to determine whether the justifications had any effect on the HIRN. But if this is so, why should it be called the project, and not the experiment? The answer is that the project was to determine whether the justifications had any effect on the HIRN. The experiment was to determine whether the justifications had any effect on the HIRN. The project was to determine whether the justifications had any effect on the HIRN. The experiment was to determine whether the justifications had any effect on the HIRN.

<sup>1</sup> This current project and the project of the HIRN in the study of subjects in a similar project in the study by the author in the 1970s (September 10, 1970).

pusculi, these pusculi, the clusters of small spots, etc., are easily and easily degraded, in substance, together with the short incubation period, account for the facile rate of spread especially in warm climates. If individuals are too hot apart and tend to look clanging out, instead of, as the chances of spray infection are inversely as the cube of the distance, the likelihood of one to one infection in a ship is still less, greater than in a ward or institution with bed centers too hot apart. Yet one leaves infection will spread easily even under the latter conditions.

The more one considers the subject the more hopeful the ordinary preventive measures for spreading plague, and even outside seem to become. Even the isolation of actual cases can later little preventive effect except as a possibility of removing a possibly serious secondary infection. All the usual preventive measures were insisted on in the *Asphyxiating Pleurodynia* cases were always used to the north, the rising, continuously marked *Brachycephalus* larvae and guinea pig but it made no difference as to whether a man always present on watching these larvae. As regards the effect of vaccination I have little personal experience and what there is is bad. About twenty men had received a dose of the influenza vaccine vaccine and they got no better or worse a case than non-vaccinated. Two developed broncho-pneumonia and died.

During the height of the epidemic many things were done to the 'Asphyxiating Pleurodynia' cases, only three of whom had been vaccinated, only two of the men developed influenza, one of whom died, both when vaccinated men.

In spite of the above facts, which are too few to give the slightest value as against vaccination the evidence that is collected seems to show vaccination of much better than of vaccine, not used, to be the only sound preventive measure. The above evidence is my opinion only, the evidence for a much better dose of *B. anthracis* is in the vaccine.

#### THE CASES.

Treatment on general principles was the chief line followed. It was shown that the earlier a patient came under treatment and efficient nursing, the less chance was there of his developing the fatal lung sepsis, and dying of this if he did so. The broncho-pneumonia, even the of an pneumonia due to different absorption of oxygen by the choked lungs, or inhibition of the pressure in the pleural space, and hence of the heart from a suspended tension. The suspended tension is the reduction of the tension in the pleural space, the almost universal slowing of the pulse rate in early asphyxiating and the frequent sensation of sudden breathlessness so frequent after influenza infections. The only form of specific treatment, that was certainly of any use and also has a rational basis, was the constant administration of oxygen begun early and continued until the respiration was easy and the infant good. In one or two lung cases which at the time seemed hopeless, I was convinced it was only the continued

administrators of vessels that ultimately stood in need. As far as was possible in the "Agulis," the preliminary cases were investigated, and the unexplained refusals were made a matter of long and repeated discussion and were discussed all. I was convinced that some diagnosis, which certainly might have been a matter of a few days, had always been possible in almost all of the above procedures. When all the cases generally accepted upon it, that whatever epidemic causes influence the chief danger lies in the fact that it leaves the resistance of the host to all other infections and thus permits any pathogenic bacteria in the case to obtain a footing, and having done so to do their worst with less opposition than they usually get. Hence chronic disease is treated at one place, a venereal infection made an abscess in a small full of previously unexplained infectious process.

#### THE PORTERS OF THE AGULIS AND THE AGULIS VESSELS

An observation that throws some light on the transmission period and characteristics here is seen may be compared to the influence of small vessel long rivers has in the high lakes, just as much just as much. I am inclined to believe that the influence on the "Agulis" has all had been in close contact with some of the small vessels before falling, I have there a few. In each case there was a definite history of illness in some forty-eight hours before the onset of the disease. In two cases this history was the long journey between the Agulis and the north. In another case the others who had not left the ship for some weeks were taken for a long walk some back-stuffed and had and next day had no more, as had with the disease. The last case, certainly a very moderate disease. Next, one might say, that this has been the Agulis later in water on the ship, but with influence. These observations are complete. I think that it is that in an infected ship the members of the crew escape. They are well and in general, however, just as if a number of epidemic, but if there are infected, either because they are not as fit or perhaps because they get a higher dose or follow a different infection. For reasons stated above it is almost to think they escaped the chance of infection altogether during the last time the disease was epidemic on board.

#### CONCLUSIONS

From the study of the "Agulis" series, one can come to the following conclusions: "There is nothing I have read published that is really more public with them." Perhaps the is a most peculiar disease. Features of cases from different ships vary in an extraordinary way while having, yet, common characteristics, and the individual cases may sometimes vary so widely in the same ship. For example in a batch of nineteen men from one ship, 45 per cent. had spottiness, but the infections were mild otherwise. The percentage of cases of the whole series is three spottiness,

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
6	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
7	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
9	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
11	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
12	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
13	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
14	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
17	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63																																					

**TABLE I**

1. The first step is to identify the problem. This involves understanding the current situation and the goals that need to be achieved.





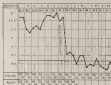


FIGURE 1.—WASP larvae for parasitism pending the action of several *Ascaris* during parasitization. Pulse and temperature down left terminal vein induced by arthralgia and para-ventral of whole leg. *P. ascaris* is registered for culture. Curves: —Pulse; --- rate response. Blood provides 10% time of absence in time. Temperature fluctuations. Parasitism results in complete recovery.

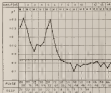


FIGURE 2.—Disseminated *Ascaris*. Shows a typical middle back response. (100% pulse). Rate slowing of pulse.



Case 3.—(Continued from p. 161). High temperature falling, a convulsory night before the onset. No long apnea. Onset of all convulsions.



Case 4.—Intermittent convulsions. Day 40 and 41 to 42. Temperature increasing.

Case 4.—Blood culture, *Paratyphus*. Patient had no delirium, but, on the seventh day of illness, left hand then suddenly cold. Spasms then occurred containing 30 convulsions and paroxysms. Patient was unconscious or delirious for the last two days. Highest temperature 40.5 per cent. Patient died 22 days after onset before death. Marked temperature. High temperature not constant. Symptoms not marked till late in illness.

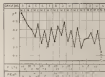


FIGURE 3.—Blood counts. *Neisseria meningitidis*. Low count, but not critical from abscess. Death counts based all over abscess and septum; pus also negative. Pure blood counts containing streptococci and *S. typhi*, and Patient also based all the way. Highest abscess count 3.1 per cent. Counts revised on abscess and continued till death. Temperature normal on 1 and 14. Only swinging temperature and high temperature rate throughout.



FIGURE 4.—Blood counts during whole stage. Patient also died on 14.

FIGURE 5.—Streptococcus meningitidis during whole stage. Patient also died on 14. No lung signs. Patient was lethargic and had a low, papular rash. Low growth of *Streptococcus meningitidis*. Stage abscesses.

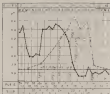


FIGURE 1. Relationship between the number of eggs per female and the number of females per male. The number of eggs per female is shown on the Y-axis and the number of females per male on the X-axis. The dashed line represents the relationship between the number of eggs per female and the number of females per male. The solid line represents the relationship between the number of eggs per female and the number of females per male.

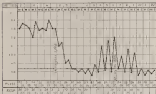


FIGURE 2. Relationship between the number of eggs per female and the number of females per male. The number of eggs per female is shown on the Y-axis and the number of females per male on the X-axis. The dashed line represents the relationship between the number of eggs per female and the number of females per male. The solid line represents the relationship between the number of eggs per female and the number of females per male.



## SYMPTOMS.

1. Fever. Onset 1956. Low 100° at 10 A.M. infection was probably primary, but the story of an illness resembling it goes on as far as 1940, evidence being that it had something to do with the same illness. These cases are not included in the above table.

Case 1.—Typical form. Admitted very ill with low delirium on second tenth day of illness. Signs of toxicoinfection and bloody sputum. Blood culture gave *R. typhi* even on 4 days' delayed hemoculture technique. Bacteriophage culture gave 2 isolations and was positive. Case died within the week.

Case 2.—Typical form. Admitted on afternoon of second day of illness. Mild toxicoinfection signs; otherwise had not acute picture very ill stage. I considered patient to be softening, till the Census returned lower fever and told me it was typical. A Widal reaction then was positive up to 1:500. Blood culture sterile. Bacteriophage *R. typhi* and paratyphus. Patient ran a typical course with typical delirium and hemorrhage, to eventually reach a complete recovery.

These two cases occurred among doctophages at Lyons probably due to drinking from a fountain water source. I think between the infection was probably primary and lowered their resistance to typhoid which without the softening epidemic they might have escaped.

Case 3.—Unusual and confused illness. Admitted with mild attack of infection which lasted a week and a history of a possible ty. Hemoculture was very weak and actually did suggest doubtful infection but passed off with the patient. On the sixteenth day he had no infections. He thought to be cured. One up and upper body a bit stiff on the nineteenth day of illness he suddenly fell into unconsciousness. Temperature 100°—101°. No eye infection was observed and pupils unequal. Respiration Cheyne-Stokes type. Temperature up to 100°-102° F. Lumbar puncture fluid was under pressure though it appeared normal. However it contained a large number of cells (white cells 100,000 per cmm) but died on twelve hours.

Just before—he slumped in the left lateral into the arm of a Thompson spring was depressed. It commenced with the frontal area, the lower wall of which was raised. The slump was beginning to sink into the mattress and had slack walls. There were numerous punctate lesions (ring) in the region of the parietal lobes. The slump continued. One of green fluid was observed and getting pronounced in face, neck. There were no other slumps noticed in the course of subsequent recovery. I think the slump was of some greater standing in a latent way. The frontal reaction was of great standing. The attack of infection gave the slump a back seat and then killed the patient.

Case 4.—Acute meningitis, septicemia (infection). This case was a twenty-four hours tragedy. A military officer, age 35 (Canadian), visited the Flow at Camp. He passed a day at 8 p.m. He left quite well and had a good dinner about 5 p.m. to left slumped, and had a headache. He turned on his lamp after that was 104 F., pulse 120. There was no sweat and tongue turned. He vomited during the night. At 9 a.m. the following day he was extremely weak, temperature 106 F., pulse 90. He moved in the Angle at 11 A.M. or so a state of collapse. He was dead in about an hour of the onset. (His wound band is attached. He played upon no chest or abdomen. A few purple spots were then present on the face, back and hands. At 2 p.m. condition was slightly improved and pain was just perceptible at the wrist. Patient was quite clear headed and had no complaint except extreme muscular weakness, being scarcely able to lift his arm towards his head. At 3 p.m. he gradually liquidate more. Patient died at 5 P.M. after only twenty five and a half hours illness. During the blood culture gave a form negative diagnosis morphologically this

the leucocytes. Subcultures on a week ago were also typical. Leukocytes presented a characteristic band during fasting + colour and sediment. Polymorphs 70 per cent. Small round leucocytes 25,000. Polymorphs 75 per cent. small round, 14 per cent. large round 10 per cent. From the time he arrived on board the patient's position spread almost rapidly up his limbs and over his face which at death was almost black and he looked as if he was wearing long purple stockings and gloves.

Post mortem.—All organs were apparently normal except the suprarenals which were hyperaemic and saturated with blood. Microscopic sections showed no sign of tubercle only leucocytic infiltration. The blood was very rich. There were no haemorrhages into other organs or across membranes. Culture from the suprarenals gave the same organism as was found in the blood during life. Unmistakably cultures of this organism were told three days before I had time to compare it fully. It was then found to be dead, but that in itself is corroborative evidence that it was *meningococcus*. A reference was not looked for as the result failed to give from good sources is clear. The thought there is no real evidence otherwise had anything to do with this case, I cannot help feeling that influenza was primary and by lowering tissue resistance gave the carriage, more abundant evidence. Although this case is worth recording as an *meningococcus* infection without bacterial involvement. And the conclusion of the suprarenal infection has the extreme protection and fulminating course of the disease.

In conclusion I must thank the various medical officers who were on board the "Agate" for permission to see their notes and examine the cases that I was not personally looking after myself.





Table 1. *Continued*

No. of cases	Discharge destinations					Totals
	Home	Home Ls	Home Hs	Home D'	Home Ls	
1		1	1	1		3
2	1	1		1		3
3		2				2
4		1				1
5		1				1
6		1				1
7		1				1
8		1				1
9		1				1
10		1				1
11		1				1
12		1				1
13		1				1
14		1				1
15		1				1
16		1				1
17		1				1
18		1				1
19		1				1
20		1				1
21		1				1
22		1				1
23		1				1
24		1				1
25		1				1
26		1				1
27		1				1
28		1				1
29		1				1
30		1				1
31		1				1
32		1				1
33		1				1
34		1				1
35		1				1
36		1				1
37		1				1
38		1				1
39		1				1
40		1				1
41		1				1
42		1				1
43		1				1
44		1				1
45		1				1
46		1				1
47		1				1
48		1				1
49		1				1
50		1				1
51		1				1
52		1				1
53		1				1
54		1				1
55		1				1
56		1				1
57		1				1
58		1				1
59		1				1
60		1				1
61		1				1
62		1				1
63		1				1
64		1				1
65		1				1
66		1				1
67		1				1
68		1				1
69		1				1
70		1				1
71		1				1
72		1				1
73		1				1
74		1				1
75		1				1
76		1				1
77		1				1
78		1				1
79		1				1
80		1				1
81		1				1
82		1				1
83		1				1
84		1				1
85		1				1
86		1				1
87		1				1
88		1				1
89		1				1
90		1				1
91		1				1
92		1				1
93		1				1
94		1				1
95		1				1
96		1				1
97		1				1
98		1				1
99		1				1
100		1				1



negative result from cases H, P, and S, was linked to gastroenteritis from karyografts by almost two hours when reported subsequently. There is no doubt therefore that the organism isolated was *D. dysenteriae* responsible and that it was the cause of the sudden epidemic, the clinical symptoms with the sudden onset, acute diarrhoea, and short duration being in accordance with other epidemics which have been traced to this organism, sometimes without in this instance being fatal to any of the boys.

A sample of the strange meat was sent over for examination on June 26, two days after the outbreak, but nothing was found and several sets up showed no ill effects; this however was only to be expected. It is regrettable that the source of the infection was not proved, but it is highly probable that it was introduced into the sausage meat on the morning of June 26 and that those boys who were most susceptible and who perhaps received the largest dose of infection, were attacked within twelve hours, the greater number not suffering for twenty-four hours and a few showing no evidence until the third day.

The similarity of the cases in this epidemic, to that previously known as gastroenteritis poisoning makes the results of this investigation all the more interesting and important, for it is now generally believed that the symptoms in such outbreaks are not due to a chemical poison but to a definite microbial organism, almost always derived from infected meat and easily recovered from the stools, while the symptoms are acute.

#### DISCUSSION

Report, by W. G. Report to Local Government Board on Bacterial Food Poisoning and Food Intoxication.



after the apertures were sealed in except a very few, where a high temperature due to a low (50%) water content, followed by smoking or sufficing, was known to be present before the apertures and did not increase after it is probable that in a few instances it may have been due to other causes. The 303 apertures followed by fires of 100° F. and over were distributed as follows: 21 were from the 403 apertures in primary cases, 22 were from the 191 apertures in primary cases with secondary apertures, 7 were from the 240 apertures in secondary cases, 8 were from the 440 apertures in latent cases.

The 303 apertures followed by fires in latent cases included one initial aperture in a case where the primary case had only been heated two weeks and therefore probably ought really to be classed as a primary case; two others were probably due to holes in the lead; two of the remaining occurred in the same patient (Case 4). The seven apertures in secondary cases which were followed by fires were all sealed down, and there was reason to think two of these might have been due to sufficing. One hundred and two initial fires were given to primary cases and 46 to primary cases with secondary apertures. Of these 46 and 35 respectively were followed by fires of 100° F. or more. In other words it means that the primary case was subjected three times as often to at least 100° F. as 50 per cent after the initial ignition. Thus fires after the initial ignition, but not appear to have any relation to the severity of the Histiogaster infection, i.e. of the temporary increase in the severity of the epithelial lesions, present or the appearance of those not already existing. It was noted in one case of recrudescence where it had occurred two months before, following the initial dose of the course administered in the first attack.

Most of the remaining twenty-eight apertures followed by fires in the 203 sealed primary cases were not initial ones and are described in the following lists:

Case 1.—1st day: Two primary but no secondary apertures. 5.45 gram given. No more follow. 5th day: 1.0 gram given. Temperature rose to 100° F. in twelve hours. 12th day: 5.45 gram 100° F. Generalized erythematous rash present. 14th and 15th days: Back and legs pruned but subsiding. 20th day: 6.75 gram given. Temperature rose to 104° F. Twelve hours later.

Case 2.—Days 14, 1st day: Two subcutaneous abscesses on the outer surface of the popliteal region and general glandular enlargement, moderate rash becoming papular. 7.15 gram given. Temperature 101° F., fourteen hours after when the rash was much more profuse. 4th day: 8.45 gram given. 5th day: Back given. 7.45 gram given. 20th day: Moderate rash becoming confluent, present on face and upper limbs including back of the hands. The patient stated it began the day before at the site of the injection—probably initial inoculation—and that since then, he had felt chilly. "Lower fever" was present, there was no diarrhoea, and no loss. 14th day: Back healed. 17th day: Back given. 7.65 gram still present.

Case 3.—Days 11, 1st day: Healing over on left side of leg, no general and general glandular enlargement, moderate rash just appearing. 8.45 gram given. Back between arms sealed. 5th day: Back badly swollen. 9.45 gram given. 19th day: 8.45 gram given. 14th day: 8.45 gram given. Temperature 100° F.;

right and ten hours after. Nine hours after the operation temperature rose  
 present on the body, but and limbs consisting of small pink papules of size  
 most marked on the back of the thorax. 11th day Temperature 100.5  
 Throat very red, pink papules both sides and round the lips follicles prominent  
 on the back of the throat. Itching of the limbs and back of the limbs more  
 days on the face and just visible on the chest. no effluvia. 12th day  
 visible only on the back of throat and back of knees. Back 100.5  
 13th day Temperature twelve hours after the operation 101.5  
 after. back visible with the fronts of limbs and back of throat and  
 completely slightly raised. evening temperature rose and

Case 4—Age 42 1st day Continued apathy, eight years ago. Temperature  
 routine possible one month ago, no clinical signs, of syphilis 100.5  
 11th day 80.5  
 12th day Temperature 100.5  
 13th day 100.5  
 14th day 100.5  
 15th day 100.5  
 16th day 100.5  
 17th day 100.5  
 18th day 100.5  
 19th day 100.5  
 20th day 100.5  
 21st day 100.5  
 22nd day 100.5  
 23rd day 100.5  
 24th day 100.5  
 25th day 100.5  
 26th day 100.5  
 27th day 100.5  
 28th day 100.5  
 29th day 100.5  
 30th day 100.5  
 31st day 100.5  
 32nd day 100.5  
 33rd day 100.5  
 34th day 100.5  
 35th day 100.5  
 36th day 100.5  
 37th day 100.5  
 38th day 100.5  
 39th day 100.5  
 40th day 100.5  
 41st day 100.5  
 42nd day 100.5  
 43rd day 100.5  
 44th day 100.5  
 45th day 100.5  
 46th day 100.5  
 47th day 100.5  
 48th day 100.5  
 49th day 100.5  
 50th day 100.5  
 51st day 100.5  
 52nd day 100.5  
 53rd day 100.5  
 54th day 100.5  
 55th day 100.5  
 56th day 100.5  
 57th day 100.5  
 58th day 100.5  
 59th day 100.5  
 60th day 100.5  
 61st day 100.5  
 62nd day 100.5  
 63rd day 100.5  
 64th day 100.5  
 65th day 100.5  
 66th day 100.5  
 67th day 100.5  
 68th day 100.5  
 69th day 100.5  
 70th day 100.5  
 71st day 100.5  
 72nd day 100.5  
 73rd day 100.5  
 74th day 100.5  
 75th day 100.5  
 76th day 100.5  
 77th day 100.5  
 78th day 100.5  
 79th day 100.5  
 80th day 100.5  
 81st day 100.5  
 82nd day 100.5  
 83rd day 100.5  
 84th day 100.5  
 85th day 100.5  
 86th day 100.5  
 87th day 100.5  
 88th day 100.5  
 89th day 100.5  
 90th day 100.5  
 91st day 100.5  
 92nd day 100.5  
 93rd day 100.5  
 94th day 100.5  
 95th day 100.5  
 96th day 100.5  
 97th day 100.5  
 98th day 100.5  
 99th day 100.5  
 100th day 100.5







never found. When the fever was high, the usual symptoms associated with high fever, headache, pallor, general pains, anorexia and a cold feeling but no actual shivering were present. The fever differed from that commonly seen after the usual dose in that it was so frequently lasting several days and also in having symptoms. The rash appeared somewhat instead of very slightly raised red spots which tended to group together and form blotches and showed a marked persistence for the first seven surfaces of the thighs, lower forearms and hands, even after the rash was practically uniform, lasting seven days. The vomiting occurred several hours after the injection and was therefore quite distinct from that commonly seen immediately the injection is given, which appears to depend partly on the gastric tonic produced and partly on gastrostasis.

If a reaction appears very much more common in early cases. Case I is the only exception in showing the present course, so what stage it appears to differ a small extent from the remaining thirteen cases. Eleven of the thirteen cases had subcutaneous puncture scars and six of these had fever of 100° F. or over after the usual dose. One is more frequent in the present course than in the whole of the cases (see p. 221) against 4 days and 1 but the reactions are too small to generalize from.

The onset of these symptoms had no relation to the nature of dose, previously given, up to the period when the last dose was given, but a fair constant relation to the period that has elapsed since the first dose was given. Thus in the case of the appearance of the rash it was the 15th day in 1 case the 16th in 4 the 17th in 7, the 18th in 1 and the 19th in 2. In the case without a rash the influence of the symptoms occurred on the 15th day. No case occurred after a single dose in the present series, but this is explainable from the fact that in no early case was the interval between the first two doses sufficiently long and so already shown, it is only in early cases that the reaction is likely to occur. Though these doses did seem to be an addition to the period that has elapsed since the first dose, the reaction seemed to be precipitated, and possibly aggravated by it. In cases 13, 2, 7, 9, 12 and 24, though in Case 13, where an injection was given just after the onset of the symptoms, the reaction was not particularly severe.

It is shown by the cases that although symptoms previous to the reaction—other than the usual ones—are not followed by any reaction, they given after usually are more violent and of longer lasting reactions in the next subsequent dose. The symptoms of these initial reactions resemble the first but are equally less severe and come on in a few hours, instead of after an interval of days, they may be repeated at further injections are given and they can occur after very small doses. (Veronalchloral).

The fact that this reaction is especially liable to occur in a certain class of case shows that it is not an ordinary poisonous effect of the solution injected. Except for the absence of allusionary or symptoms at once



## SPINAL ANESTHESIA.

BY HENRY THOMAS, MEDICAL OFFICER, R. N. S. S. S. S.

IN 1901, the physiological course for naval medical officers, was thoroughly expounded by the Medical Director General, but Junior Postal Medical officers were sent to the Royal Naval College, Greenwich, and attended courses, chiefly at the Dreadnought Hospital. Mr McGovern, one of the surgeons on the staff of that hospital, used spinal anaesthesia extensively, and these naval medical officers had an opportunity of becoming familiar with this method. The result has been that spinal anaesthesia is not infrequently used on the Navy. Surgeon-Commander Irving, in the *Journal* of January 1903, has given his experience, and, more lately, one of the Cape of Good Hope Hospital has had in 1904, I have observed the use of spinal anaesthesia.

The following is a brief summary of my experience during my three years' term:—

The anæsthetic used has invariably been cocaine and glucose, either purchased in ampoules of cocaine saline from the Fisons' Firm, or sublimation or prepared in our own dispensary.

The skin was prepared by the usual thorough cleaning followed by iodine spraying. The site of the puncture was chosen with ethyl chloride, and the skin and subcutaneous tissues punctured with an ordinary small hypodermic needle. The puncture was then continued with a Barre's hollow needle, and the stylet withdrawn as soon as the typical sensation of protruding tissue paper indicated that the dura was entered. The removal of the stylet before this has been tried, but has the disadvantage of leaving a doubt as to whether the hollow needle is blocked, when the cocaine spread had done not appear. The solution is repeated with a Barre's cannula and syringe the amount used being 14 to 24 cc. of the 1 per cent. cocaine—i.e., 1 to 20 cc. of cocaine.

We have found that, in the beginning, an accurate lumbar puncture is by no means as easy as would appear from the literature on the subject. The position of the patient during the puncture is important. If the back is not fully flexed and if there is any rotation of the back or if the patient flinches during the operation and withdraws the vertebral column, it is quite easy to miss the theca. After practice, one soon finds no difficulty, but undoubtedly beginners often fail. We have tried the sitting position recommended by Gault in the *Lancet* of June 3, 1902 and we do not like it, firstly, because rotation and lateral flexion of the back are more apt to occur, and secondly because the stomach may protrude into the spinal region, before the patient is placed in the recumbent position. We

by the physician in, while the subject lies supine on the table. We then, of course, flexing his hand, induce his thumb into his knee, and bend his head down to his knee. We then arrange his trunk carefully so that there is no tension, and then with splinters or padded boards prop up, very slightly, the pelvis and the shoulders from the table, so as to secure a very slight lateral flexure of the spine, with the most dependent point at about the first lumbar space, *procurva*.

Having then noted the line joining the highest point of the thoracic curve (which corresponds with the space between the third and fourth lumbar spaces, *procurva*) we palpate the space between the second and third and, when thoroughly demonstrated, we leave this space and then make the opposite, taking the greatest care to move the trachea exactly in the middle line and exactly midway between the second and third spaces. The trachea is then removed and the spot from a little above and the Parker hollow needle with stylet is inserted into the posterior wound and pushed steadily into the spinal canal, the needle kept constantly remembering the anatomical features of the interspace space. The length of the shaft of Parker's hollow needle is 1 in., and we generally find that it has to be pushed in for 2½ in. to 3½ in. before we feel the characteristic resistance of penetrating the theca. The most difficult cases are the very stout old patients, who cannot lean their backs, and have a large columnar bony substantia nigra in their lumbar region. We have noticed that negroes appear to have their spinal theca nearer the skin than the white people, but the small number of our cases does not justify any generalization.

The stylet is then withdrawn, and the needle spinal fluid should flow away freely. The tension of the fluid varies considerably, and we think that in those cases where the needle spinal fluid appears to be under high pressure, the anæsthesia is not so successful, possibly due to some of the storage solution being washed out after the removal of the cannula. If no needle spinal fluid appears, it may be that the hollow needle has gone too far, and has penetrated the anterior wall of the theca. Gentle withdrawal of the needle for a distance equal to an inch or so will usually, then, mistake or it may be a case of so-called "dry spine," where there is no positive pressure on the fluid. If the patient is instructed to cough, this condition will be revealed by a few drops of needle-spinal fluid appearing. But, as a rule, the non-appearance of needle-spinal fluid means that the theca has not been entered, and that the correct position of the puncture has not been expressed by the operator. Under these circumstances the position of the patient and his surface contour must be again examined, and especially should be noted the direction of the needle (it should be observed that these needles are rather soft and easily bent). Palpation is often more accurate than inspection in these cases.

If the use of the skin puncture is found to be wrong, it is well to puncture again at the next open skin. If the direction of the needle appears to be crooked the needle should be withdrawn and another straight one inserted at the skin puncture and pushed gently on to the correct direction.

Having successfully entered the skin as proved by the flow of the cerebro-spinal fluid, the stylet should be gently replaced while the syringe is filled. The needle, which should be exactly the same length as the hollow needle, is affixed to the syringe, and the contents of an ampoule drawn up into the syringe. Each ampoule contains 0.5 cc. of fluid containing 0.1 gr. of strychnine and an equal amount of glucose. All air being driven out of the syringe and ampoule, the latter is gently passed along the hollow needle until its shoulder is firmly pressed home, and then the fluid very slowly injected, without stop, flow. The average amount of fluid I have used is 1.4 cc. but I am inclined to give more frequently on all such cases suitable for strychnine. I always use 1 cc. for abdominal cases now. As soon as the fluid is injected, the patient is directed to take two deep inspirations, the needle, syringe and ampoule being freely withdrawn during the second inspiration. A cellulose dressing is put on the puncture and the patient's head and neck are extended and raised by lifting the head flap of the table. The patient lies on his side in this position for three minutes, and then is tilted gently on to his back with the pad still under the nuchal region. The analgesia then slowly runs to about the level of the nipples and lasts about an hour.

Blond's paper in the *Lancet* of January 4, 1914, covers 10,800 cases and is therefore an authoritative one. But occasionally a person with less experience is able to give more help to the legman, so he has not had time to forget his initial delinquency. We have had very frequently pallor, nausea, vomiting and a sense of heaviness coming on within the first ten minutes of the anesthesia, and always soon attended by a little heady and slight or other tingling. Blond gives a list of blood-pressure in the course of these symptoms and says they can be avoided by placing the patient in a recumbent position. In support of this it may be stated that we seldom or ever have observed these symptoms on anal cases when the patient was placed in the lithotomy position. Although the head has not lowered the limbs were elevated, and, in certain cases, pressed against the abdomen. Since our earlier cases, we have followed Blond's method of laying our patients flat after a few minutes, and we are able to fully corroborate his experience.

Exhaustion by shock, turning blue, hiccups is the only unpleasant, after-effect, and this is much less frequent, if the patient is carried back to bed without any jolting. Two points of support, the same right as found to be the best treatment for the backache and the occasional headache which occurs.

The following table shows the operations performed under anaesthesia during the three years I have been at the Cape Hospital —

Vagotomy	—	74
Appendectomy	—	10
Excision of uterus	—	2
Ovary	—	1
Tubule in situ	—	21
New growths	—	14
Haemorrhoids	—	27
Hernia	—	16
Hydrocele	—	1
Epispas	—	11
Excision of penis	—	2
Cryptorchid	—	9
Phimosis	—	20
Subincised testicle	—	3
Tubercular testicle	—	2
Orchitis	—	1
Prostatectomy	—	20
Vasectomy	—	22
		<hr/>
		226

# AN INQUIRY INTO THE HOSPITAL SERVICE OF THE UNITED STATES ARMY DURING THE WAR

BY

JOSEPH CAMPBELL, M. D., AND JOHN C. CAMPBELL, M. D.

When all was over a hospital ship arrived at 1000 hours. What it left behind it was the change of one of the largest ships. During the period there was "business of considerable" importance. As the North Sea and it always seemed that the return of the ships to their base consisted with a definite increase in the number of cases of acute appendicitis sent to the hospital for treatment. This increase seemed to be so constant a feature that I was led to investigate the facts by collecting and tabulating the number of cases admitted for that condition, and by comparing these for different periods to determine to what extent any improvement was true or I used as a false sense of proportion. Should the fact be established that a real battle or even the mere possibility of action with the enemy is productive of an increased incidence of appendicitis among the men engaged in a wide field of operations as to the cause of this occurrence is spread up. I propose therefore that to collect a series of figures for examination and then from them to attempt to draw certain inferences as to the light in what is known regarding the predisposing causes of appendicitis.

## THE PRINCIPLES OF THE HOSPITAL SHIP

Before proceeding to analyze the statistical tables which form the basis of this inquiry it is necessary to state that they may be properly understood to give an outline of the general scope and function of a Naval hospital ship as these became evolved in the course of the war.

In the very earliest days of the war it was assumed at my unit by the staff of the hospital ship, that the part they would be called upon to play in an engagement would roughly correspond to that performed in land operations by the field ambulances. This meant that the ships would arrive about in the immediate vicinity of the fight and be ready to collect and give assistance to the wounded of damaged and disabled ships as they dropped out of line, it being understood that bread and butter were to receive equal attention as the wounded men. The great speed of modern ships of war on the one hand compared with the exceedingly modern rate of progress of the hospital ships on the other, and upon the very obvious difficulties of transferring casualties from one ship to another in any but the calmest weather, soon made it clear that the hospital ship must be considered in discharge of the less exacting function. They had, therefore, to play a part analogous to that performed in land operations by the sanitary clearing stations, that is to say, they remained at the base port where the Fleet put in and received all cases of wounds and disease



from the ships when they returned to port, and not having previously been given by the medical staff of the ships concerned. During the long periods when the Fleet had to play a waiting game it was the rule that all cases of sickness except the most trivial sickness had to be sent to the hospital ship as soon that the sick berth or compartments in the fighting ships might always be kept ready for any emergency that might arise. In fact the hospital ship kept the fighting ships continuously 'cleared' of all sick. In the first few months of the war the various hospital ships were distributed at the different bases and returned there for lengthy periods until the completion of the work and the completion of the coal bunkers made it necessary for the ship to make a passage to a port where the patients could be landed and thence conveyed to the large Naval hospitals by ambulance train. By the year 1914 however all the ships in Northern waters were working according to definite schedules, each ship doing a tour of duty which lasted three months and one month being spent at each of the principal bases ship relieving ship in rotation. At the end of her three months tour each hospital ship went ashore, landed her patients and had a week or ten days for coaling ship and carrying out necessary repairs. As there were four ships employed it might be said that at any given time there would be one hospital ship at each base and one off duty ashore. In a general way such is the Truth of North and in Cromarty was exceedingly close. In the third month of 1915 there was always plenty of work to be done. It should be mentioned that it was the rule to clear all patients except those whose condition was so estimated assessed from a ship before she moved from one base to another. Cases were sent either to hospital by ambulance train or else transferred to the relieving ship, the object being that each hospital ship should commence her month of duty at each base with the maximum number of empty beds available. From time to time, too, it was the practice for a small 'cruiser' to relieve the hospital ship at the same Northern base of no great cases to provide for contingencies to the medical or naval, that the hospital ship should be able to complete her month of duty without having her resources strained beyond movement limits. The analogy to the cavalry clearing action is therefore complete at all times here and most of sickness were cleared from the treatment units in the hospital ship, which in her turn evacuated her cases by rail or sea as a combination of both to base hospitals on shore.

The nature of the nature of the work which fell within the province of the Naval hospital ship will serve to show that a very low rate of the general health of the officers and men of the Grand Fleet and the divisions most prevalent may be obtained by a study of the sickness in these ships over any given period.

#### HYGIENIC FACTORS

By means of the following tables I propose to give a summary of the number of cases of some epidemics treated in the hospital ship

"London" between the months of August 1914 and September 1915, showing at the same time the case incidence of that disease compared with the total number of patients admitted for all cases—unknown, unknown and wounds.

Table A

From August to December, 1914.—Throughout this period the ship was stationed in the North Sea and was almost constantly in attendance in the Grand Fleet. At this time "seas" were fairly common but there was no evidence of the seas first coming in touch with enemy ships.

Total number of cases identified, all cases.	60
Total number of cases of acute appendicitis.	57
Percentage of appendicitis to total cases.	95

Table B

From January to December, 1915.—During the month of January, "London" was stationed in the southern area of the North Sea and for most of the time lay completely idle. In the first week of February she was despatched to the Eastern Mediterranean for service with the Fleet during the preliminary stages of the Dardanelles operations. Up till April 20 when the actual landing of troops on the Gallipoli Peninsula was initiated and the ship was employed exclusively in the treatment of Naval sick and wounded. Thereafterward she took a full share in dealing with casualties from the Army. Throughout the campaign the hospital ships were employed in clearing stations, cases being brought off directly from the trenches and arriving on board sometimes within two hours of the infliction of the wound. From the close proximity of the forward lancea all arms to the sea and the constant exposure of the beaches to mine or less constant shell fire most of the immediately surgical treatment was carried out in the hospital ship which used to be off the various beaches collecting men up to the maximum limit of their accommodations and then transport them to the base hospitals in Egypt and Malta.

Total number of cases in 1915, wounds unknown and unknown.	11,619
Total number of cases of acute appendicitis.	51
Percentage.	53

Of Naval cases only between February 1 and April 20:—

Total cases identified.	57
Total of acute appendicitis.	5
Percentage.	19

Attention may be directed to these points in connection with the figures for 1915.

First the close similarity in the percentage, 19 to that of 53 for the months August-December, 1914, while the ship was working with the Grand Fleet, namely, that from the middle of February till the middle

of Alaska, the period being which most of the 113 Naval men were stationed, the ships were sent to low water five times the low high water and in danger from enemy action and torpedoes, finally the exact high low percentage of appendicitis in the gross number carried for the whole year nearly 12,000 men. This is all the more striking as it is safe to assume that cases of acute appendicitis occurring during the voyage would all be brought to the hospital ship almost certainly before operations could seriously intervene. There could therefore be no leakage of such patients through other channels. At the same time the sickness rate was always high. From September when the nature of our attempts to break through in the North water became a seriously and heavy fighting ground, onwards till the time of the last encounter from North on December 26 there were at least twenty men sent all to the ship for every man wounded by the enemy. Cases of infection in the gross were gastro-enteric and in origin, viz., paratyphoid and epidemic paratyphoid.

Table C

From February to September 1905—1st February, 1906, the ship came most returned to duty in the North Sea. The figures for this period are as follows:—

Total number of cases of all origin	577
Total cases of acute appendicitis	41
Percentage	10

It will be noted that the percentage of acute appendicitis was almost doubled. The figures are more striking when we analyse them according to the different spells of duty carried out by the ship. Thus:

## (I) Period March 1 to April 3

Total number of cases identified	199
Total number of cases of acute appendicitis	6
Percentage	10

These figures closely approximate to the results given in previous tables. During this time there were no operations in which the Fleet as a whole was engaged.

## (II) May 2 to June 20

Total cases identified	100
Total cases of acute appendicitis	10
Percentage	20

On May 21 the Battle of Jutland was fought. Ships returned to the Northern line in the afternoon of June 1 and the wounded men of were transferred to hospital ships "Clara" and "Barbar". Orders were issued that ordinary cases of sickness were not to be transferred that day unless very urgent. "Koslow" was told off to deal with these cases. "Clara" and "Barbar" proceeding south with wounded in the early morning of June 3. The following table gives a summary of the new patients treated on the "Barbar" during the seven days following the action:—

Total cases admitted	111
Total cases of acute appendicitis	2
Percentage	1.8

We may agree on the one hand as to note that of the nine cases referred to, six were operated upon immediately being in the acute stage when admitted. Of the three remaining, two cases from a destroyer and a mine-sweeper respectively and these ships did not return to the base for some days after the action. Both patients gave typical histories and all showed slight signs when admitted to 'Casualty'. The third case was that of a boy seaman who came from a ship which was on patrol duty some miles from the scene of the action. By the time he reached the 'Casualty' he was obviously recovering from an attack of acute appendicitis. He refused operation and being under age and the case not urgent the matter was not pursued. In any case there is but little justification for connecting his attack in any way with the battle.

(c) July 2 to September 12

Total number of cases admitted	437
Total cases of appendicitis	23
Percentage	5.3

In connection with the figures quoted in these tables it should be clearly understood that new cases only are entered in, or cases admitted directly from, ships in which the patients were serving when taken ill. The cases transferred from one hospital ship to another, frequently amounting to fifty or more, have not been taken into account.

The weekly admissions of new cases during the spells of active employment of the ship between March and September 1916, are given in the following returns:

Return A—

March 2 to March 9	Total cases	25	Appendicitis	3
March 12 to March 19		26		2
March 17 to March 23		33		3
March 26 to March 32		81		1
March 31 to April 7		124		1
		209		10

Return B—

May 2 to May 9	Total cases	6	Appendicitis	3
May 10 to May 26		6		3
May 17 to May 23		8		0
May 24 to May 30		37		2
May 31 to June 6		58		3
June 7 to June 13		181		7
June 14 to June 19		26		3
	Total	322		21

Note.—In the week in which the Battle of Jutland was fought the figures are extraordinarily high, viz. six cases of acute appendicitis out of

a total of 1,421, or a percentage of 20.5, in the fleet concerning that again the average is high, giving a percentage of 2.7.

It will be noted that these figures are not the same as those given already in Table C, as the dates do not exactly correspond.

Table C—

	Total cases	—	—	Appendicitis	—
July 5 to July 12	4	—	—	0	—
July 12 to July 19	4	—	—	0	—
July 19 to July 26	5	—	—	0	—
July 26 to August 2	11	—	—	1	—
August 2 to August 9	15	—	—	0	—
August 9 to August 16	20	—	—	1	—
August 16 to August 23	127	—	—	7	—
August 23 to August 30	95	—	—	0	—
August 30 to Sept. 6	27	—	—	0	—
Sept. 7 to Sept. 12	10	—	—	1	—
Total	271	—	—	10	—

In the week August 27 to August 31 attention is directed to the high incidence of appendicitis, viz., 2.5 per cent. of all cases admitted. In the evening of August 28 the Fleet returned from a voyage of the North Sea, in which contact with the enemy's coast fleet was very nearly established, at a time, "Nightingales" and "Palomares" were sunk by enemy mines and torpedoes. These cases of acute appendicitis were sent over to the

Fleets immediately on the arrival of the ships back in port. Against them on the other hand for the week August 31 to September 5 out of eighty-seven cases admitted there were six of acute appendicitis, a percentage of 1.2. The Fleet was not at sea on this occasion, so that these figures must be set against the hypothesis that action or contemplated action gives rise to an increased incidence of acute appendicitis. A word of explanation should be given as regards the figures for the total number of cases treated. In many instances cases which help to swell these totals would never be admitted to a civil hospital at all, a very large proportion would only attend as out-patients, while a serious number would never pass beyond the casualty department. The rule as regards keeping the fighting ships cleared of non-officers was, in practice, that acute internal cases are sent off to the hospital ship for treatment. Hence some of these slight cases constituted the main incidence of appendicitis, would be considerably higher than it appears from the above figures. In fact the health of the Grand Fleet was so remarkably good that of serious cases of disease I should say that appendicitis easily shared with pneumonia the first place in the surgical series. Unfortunately the name of the disease to the total number of personnel cannot be grouped, it is impossible to give what this figure would be and even now no accurate estimate it would be possible to give. The question as to whether the number of cases of appendicitis represents an amount of error or disguise may be by, I think, be dismissed. The figures I have given might not agree with the official returns, a good

many cases are sent up with a diagnosis of appendicitis, although the operation is found not to be in which operation may have led to the diagnosis. Disease of Intestine," in which some other operation is superimposed on it? I have tried, therefore, to judge each individual case on its own merits, guided by such notes of the condition of the patient on admission and subsequent progress as have been available. A good many of the cases have been through my own hands, so that I rather opened the windows myself or assisted in the operations and the conditions found have placed the diagnosis beyond any shadow of doubt. By far the greater number of the cases tabulated above as appendicitis have as has proved to be in the opening table. For instance, of the 70 cases which followed in the last period, July to September, 1914, sixteen were operated upon.

Unfortunately my figures are scarcely large enough to prove anything, but I think it will be conceded that such as they are they have not the impression gained at the time that there was an actual increase in the numbers admitted after the Battle of Jutland and that the case rate was very distinctly raised.

#### COMPARATIVE FIGURES

The figures already set out show the result of our experience in the hospital ship "Vendua." Before quitting the statistical side of the question it is necessary to quote figures from other sources by way of comparison. I have selected for this purpose—

(a) Statistics to show the experience of other hospital ships employed in duties similar to those upon which "Vendua" was employed.

(b) Statistical evidence from official reports of the Health of the Navy in past years.

(c) Evidence from the Surgeon General's Report of the health of the U.S.A. Army. This latter was selected for this reason that no similar source relating to the British Army of recent date was available.

(d) A set of figures from the official reports of some of the large voluntary hospitals in London.

(e) Under this heading information in the literature is at the disposal of writers of a very meagre description. In an account [1] of the main under treatment on R.M. naval hospital ship "Kare" during a period of two months duty of the Oulphs beachers during the summer of 1913, it is stated that out of 681 patients operated upon there were three cases of appendicitis or 0.7 per cent. Reference to Table B above will show that over a longer period but under similar conditions the percentage on "Vendua" was 0.8 of all cases admitted. In the case of "Kare" the total number of patients admitted for all causes is not stated.

Again Surgeon Commander Wilson, M.V.O., has set out the record of twelve months operation work in hospital ship "Dromedary" when stationed

[1] The figures are based on hospital or hospital ship diagnoses of the case, or on the surgeon's bill.

is, the estimated 100 in the North Sea [3]. Of a total of 1,000 operations, 1,000 fish and 100 porpoises were including one, also killed in the, only 1 of the operations was a reported hit. This being the total number of operations estimated for all cases is not given. This number was put before Commander Vidale's figures with those of the operations performed. It is myself was a somewhat longer period, viz., June 1917 to December, 1918. During this time I performed ninety-three operations of which twenty-two were appendectomies—that is about one in every four cases in my experience as against one in every five in Vidale's experience. The Surgeon General's Report [4] for the U. S. A. Army for 1918 shows that in a total number of 4,000 operations performed throughout the whole Army that only three were 500 appendectomies, or roughly 1 in every 10 operations.

(2) Below are summarized official figures taken from the statistical reports of the health of the Navy for the four years immediately preceding the War.

(1) (i) Year 1920.—	
Strength of Total Force	100,000
Total cases of sick and injured cases on Ship List	76,400
Total cases of appendicitis	200 (of which 100 were operated upon)
Case rate of appendicitis	0.02 per cent. of all sick
Case rate of appendicitis per 1,000 of total strength	2.00
(2) (i) Year 1911.—	
Strength of Total Force	125,000
Total cases on Ship List	70,000
Total cases of appendicitis	400 (of which 181 were operated upon)
Case rate	0.03 per cent. of all sick
Case rate per 1,000 of total strength	2.00
(2) (ii) Year 1920.—	
Strength of Total Force	117,000
Total cases on Ship List	70,000
Total appendicitis	204 (of which 115 were operated upon)
Case rate	0.03 per cent. of all sick
Case rate per 1,000 of total strength	2.00
(3) (i) Year 1913.—	
Total Force	100,000
Total cases on Ship List	70,000

The total for cases of appendicitis in this year is not summarized but deduced [4], to which I am indebted for the operation figures in the above tables, states that 200 cases were operated upon. These tables show a very gradual rise in the cases each year till 1913, and to judge from the number of cases operated upon it is safe to assume that the steady upward inclination of the curve should be continued in this year also.

It is noticeable that in the last six months of the war the rate ratio jumped from roughly 0.1 per cent. to 2.5 per cent. (rate ratio) among the men allocated to a hospital ship situated in the Grand Fleet.

As illustrating here, difficult it is to obtain an accurate picture from studying the statistical tables of one ship compared with the same figures (2) from the total force the following example may be cited. The *Hyacinth* was a cruiser attached to the East Indian Squadron. Between the years 1913 and 1918 no fewer than seventeen cases of appendicitis were noted (prevalence on board). As the average complement of this ship is 144 officers and men this gives a phenomenally high rate incidence. The total number of men on the ship for the like period is not given. This is an extreme example, however; taken at points several miles away it is to full measure of one who a particular case and attempts to draw general conclusions from that case.

to. The following figures were obtained from the report of the Surgeon-General (19) United States Army, for the year 1918.

Total Strength of Army secondary to Mexico	
Deployment	69,800
Total allocated to West Report	69,412
Total appendicitis observed in West Report	815
Total appendicitis cases	811
Case ratio of appendicitis per cent of total	1.17
Ratio of appendicitis per 1,000 of mean strength	1.71

The Surgeon-General's Report goes into further detail as under:—

Case ratios of appendicitis per 1,000 of mean strength in the different divisions of the U.S. Army

United States, including Alaska	0.70 per 1,000
Philippines	11.98 per 1,000
China, Eastern and China	6.23 per 1,000
Hawaii	49.66 per 1,000
Panama zone	12.29 per 1,000
China	9.74 per 1,000
Transports	8.65 per 1,000
For United States Army as a whole	6.74 per 1,000

For the decade 1900-1914	1.866
Total cases of appendicitis	
Ratio per 1,000 of total strength	1.69

These figures when compared with similar figures for the Royal Navy suggest that appendicitis is three times more common in the U.S. Army than in our Navy in peace time a remarkable and somewhat disappointing result when one is endeavouring to prove that appendicitis in the Fleet is relatively a more common disease than in other walks of life. The only comment on the statistics was that appendicitis is believed to be more common of more frequent occurrence in the United States than in Great Britain.

(6) In quoting figures taken from general hospitals in London it cannot be stated too emphatically that apart from general interest these statistics are not relevant to this special enquiry. The conditions governing diseases in modern hospitals are so completely different in every respect from those applying to naval and military establishments that there can be no true



compared with all. From the point of view of general interest, however, it is worth while setting out the following tables:—

## No. Bartholomew's—

1896 (11)	Total admissions	6,625
	Apprentices and apprentices	256
	Care rates	2 1/4 per cent
1897 (12)	Total admissions	7,455
	Apprentices	352
	Care rates	2 1/2 per cent
1898 (13)	Total admissions	7,506
	Apprentices	317
	Care rates	2 50 per cent

## No. Thomas's—

1898 (14)	Total admissions	3,367
	Apprentices	371
	Care rates	2 1/2 per cent
1899 (15)	Total admissions	3,156
	Apprentices	459
	Care rates	2 1/2 per cent
1900 (16)	Total admissions	3,955
	Apprentices	443
	Care rates	1 62 per cent

## Westminster—

1897 (17)	Total admissions	1,976
	Apprentices	75
	Care rates	2 57 per cent
1900 (17)	Total admissions	1,413
	Apprentices	55
	Care rates	2 58 per cent
1901 (18)	Total admissions	2,475
	Apprentices	103
	Care rates	2 68 per cent
1902 (19)	Total admissions	1,858
	Apprentices	127
	Care rates	2 55 per cent
1903 (20)	Total admissions	5,26
	Apprentices	311
	Care rates	1 50 per cent
1904 (21)	Total admissions	845
	Apprentices	136
	Care rates	1 73 per cent

If the care rates per cent of admissions for men only are taken, the following results are obtained:—

## No. Thomas's (14), (15), (16)—

1898	2 7 per cent
1899	2 58
1900	2 54

## Westminster (17), (18), (19)—

1897	4 4 per cent
1900	2 58
1901	2 57
1902	2 56
1903	2 54
1904	1 73

*Summary*.—What conclusions then does a study of the statistical material made of figures lead us to?

First, they may be set out as follows:—

(1) That taken by themselves the statistics from hospital ships 'London' is, really not too in number to permit us to make a significant statement that disease of the appendix is definitely increased by severe conditions at sea as actual evidence with the Army. That they point in that direction, was not mainly to be denied.

(2) That from the records of the 'London' taken together with such figures as are available from ships similarly employed it is reasonable to assert that, not least conditions, i.e. long periods of being almost ship with very limited opportunities for shore leave, had been definitely associated with an increase in the incidence of appendicitis derived in H.M. Fleet when these records are compared with the normal returns of incidence in the Navy in peacetime.

(3) That from the figures taken from the civil hospital reports it would appear that the former the total number of cases taken, the higher will be the case rates of appendicitis. Witness the very high rates at Westminster Hospital compared with St. Bartholomew's and St. Thomas's. This, of course might be held to discount considerably any inference drawn from statistics taken from 'London'. But again it must be repeated, the true rate of figures cannot reasonably be compared. For that same reason actual proof is not forthcoming as to whether or no appendicitis disease is more common in the Navy than among men following other occupations, though the inference remains that this is so.

#### DISCUSSION.

If the deductions set forth in the above summary, are accepted as correct, then two questions have present themselves: (1) Are there any special reasons why appendicitis should be a common disease among sailors? and (2) why warlike operations should increase the incidence of the disease?

First, as to the latter question, namely the principal aetiological factors may be stated as follows:—[20, 22]

(1) Age.—The maximum incidence is in young adult life, that is, between 15 and 25, and in a lesser degree between 20 and 45.

(2) Sex.—The disease is more common among males than females, in the proportion of five or three to one.

(3) [20, 21] Occupation.—Most authors have agreed that occupation noticeably influences the onset of the disease. Battle and Dexter [21] state that:—A number of men enjoy some history of constipation or trouble with the bowels and it is not possible to exclude those cases in which appendicitis has been so brought on from others in which bowel trouble is secondary to a primary appendicitis. It is certain the two conditions may be related.

(4) *Review of Fact*—Blackman [36] in his book "Dangers of the Yellowform Appendix" states that an attack may not subsequently be attributed to disease of dentate infestation or exposure to cold.

(5) *Local Conditions and Placental Factors* within the tissues of the appendix.

(6) *Feeding and Stress*—Wentworth [37] has said to be emotional factors.

(7) *I propose to call*—Blackman [36] agrees that exposure to cold may have an attack. In Allen and Kallman's [38] book "System of Medicine," I observed referring to symptoms in relation to appendicitis writes: "Appendicitis is certainly rather common amongst commercial travellers and men engaged in outdoor work. It is being engaged in outdoor work with much exposure to fatigue and irregular meals. Exposure to cold is frequently a contributing cause." In a study of the surface of the body leads to congestion of the vessels.

Allen Blackman [36] in his monograph suggests that the disease is "rather more frequent in sailors and stevedores who make outdoor exposure and sleep outdoors when not engaged in work, and for long hours they belong to a crowd." He also remarks that "sometimes the susceptibility may be due to the symptoms—probably more common."

Many of the factors cited are particularly applicable to the men of the fleet. As already stated the incidence is more common in men than in women and the disease attacks particularly men under the age of 40. They spend winters are very liable to congestion on spots of the effects tends to cause and the condition by exposure to places of exposure, drinking cold drinks and so forth. For a further evidence reference to a greater or less degree of emotional stress they may be subconscious or not. The value is well felt but in many instances the factor may be from just as, the dental surgeons in the Navy being in one of the hardest worked branches of any. Apart from the possible infection of the appendix from oral exposure I can agree to what is another factor just as leads to the attack of large solid waste substance (this disease) may be in the process of elimination. I further propose to call it frequently the loss of the teeth despite all the same clothing, provided for him from public and private sources. Add to this the liability to stress from the lifting of heavy weights and other work tending for severe muscular effort, and it is obvious that the crown of 11 1/2 days in time of war provide all the factors required for the occurrence of some disease of the appendix.

There is little reason to doubt that the war disease which most prevails when the fleet goes to sea directly aggressive the already susceptible circumstances. Men may become very susceptible (the disease) closed up to their stomachs and sleep there. Cold and fatigue in a greater or less degree are experienced by the whole ship's company. In addition to all these physical factors there is a political element arising from the stress of expectancy, the tension of waiting for a terrible event which may come at any moment. No doubt that factor has a very varying effect in different

individuals. The stimulus in this instance comes entirely outside of the system, the digestive organs being passive. The stimulating effect of this state of external exposure is a marked characteristic symptom. In a strongly built individual it is the first, and the strongest, symptom (see pp. 26-27). The result is increased cardiac rate. It is among the most characteristic symptoms, when food is swallowed, the only one that is so common to all, and one without having its stimulus from the digestive system itself. The view that mental states may give us small part of the stimulus, as it is perhaps more accurately, in predisposing to a state of apprehension or suggestion is as high as anything as far as the digestive tract is concerned.

Though we have independent predisposition of the secret control of the brain yet powerful mental impressions exert an influence upon the glands concerned in digestion as in the salivary glands in the glands of the stomach in the gastric and appendix. The mental influence is such that when the mind is engaged in other affairs than the taking of food, those gland secretions are apt to be scanty and regulation is apt to follow. If a person is mentally engaged he might be nervous, him, eating or not very sparingly. The stomach tends to relax again from which the mind is fully engaged with business or professional transactions, the food instead of being chewed and mixed with saliva being simply washed down to a bolus with some fluid, it is not the best type of not only producing indigestion, but of ultimately causing local and appendiceal trouble. Macoskey was able to study the influence of the nervous system in whom the anterior wall of the stomach had been removed in an operation. He was able to observe for himself that concentrated brain effort or profound mental distress have the power of producing effects upon the appendix and colon and their contents. With the aid already in a favorable condition from a variety of causes, it is not doing too far to suggest that the mental excitement of the periods before, during and after an attack may in some cases play a contributory part in the production of appendicitis.

The effects on the intestine of avoiding food have bearing on this should not be left out of account though as a possible factor in the causation of appendicitis following a battle. Early in the war it was observed that the gas used in the trenches in food fighting caused digestive disorders and larger experience has shown that vomiting due to the direct action of the gas may be the starting point of attack. The principal factor in transient, nervous or gastric indigestion. The colon may participate to a moderate degree in the reaction. In 1915 Martin [2] published a paper on an appendicitis reaction set up by condensed gas with special reference to the abdomen contracted as it. He recorded eight cases, but the number actually seen by him was much larger. A distinctive case is, each however patients or others there was a history pointing to previous appendicitis and these cases show a distinct list of results in this respect. In No. 10000 cases the wall of the colon showed the same in the two groups although

there is a large population of *Sp. appendicatus*. In these areas, after spraying the most numerous part of the vegetation. In the areas in which only this species of *Sp. appendicatus* is found the *Sp. appendicatus* appears to be found in the same manner as *Sp. appendicatus* occurring in a bushy area. It is found in the same manner, but the distribution of the disease was equal and patchy. The symptoms were not severe and the general reaction deathly with only slight loss of vigor seen. The same was found. The effect of control of the disease was in the appearance of a look of recovery of the following of a similar effect may be sufficient to cause appearance of a mild type. Other patchy diseases such as *Sp. appendicatus* and the occasional appearance of *Sp. appendicatus* in a bushy area.

Cases of *Sp. appendicatus* were reported after spraying in the houses of 1000 people and that which have been reported (Sp. in France, but nothing analogous to that has been described in France I know in connection with the fighting of the

#### APPENDICATUS AND SP. BOLDIUS

It would be useful to compare more fully the incidence of *Sp. appendicatus* among the *Sp. appendicatus* in the field with that of the *Sp. appendicatus*, there is considerable material available on which such a comparison can be based. Owing to my absence on service opportunities for a wide survey of the literature have been denied to me.

No comprehensive report on the health of the British Army in the field has been available nor have I seen any reference to this particular subject in any British periodical.

Several French surgeons, however, have observed that *Sp. appendicatus* is of more frequent occurrence among the troops than in civil practice. Thus at a meeting of the *Sp. appendicatus* (Sp.) in October 1917, Rouchon stated that the disease is much more frequent among the French troops in the field than in civil life. Thus he thinks it due to spread caused by some large camp cold—and he thinks of some that the cases are particularly grave perhaps the result of over-fatigue. It must be pointed out, however, that the *Sp. appendicatus* have already been quoted by 10000 soldiers in England who had no strong support. Rouchon's observations. However, (Sp.) chief of a *Sp. appendicatus* in the French Army has made a more detailed statement. He has performed 100 appendicectomies among 2000 surgical patients in hospital. This gives a rate of 5% per cent, which is less than appears in civilian life. The following are his conclusions:—

(1) *Sp. appendicatus* is frequent in the army. It is frequent, but a relation to the hygiene and state of life of the soldier. Causes material collection, especially a patchy deposit which is likely to be taken into account.

(2) *Sp. appendicatus* in the army is accompanied by, because of the

gently than in land garrisons, there is, therefore, particularly in the matter of cases noted or unnoted.

(4) In the many appendicitis cases should be done rather than it often is, early intervention is indicated. We might add a further suggestion in regard to Naval cases, though on fairness to all concerned the separate treatment for performing abdominal section necessarily are not always to be obtained at a moment's notice under the conditions of Naval warfare.

General Findings.—There is nothing remarkable to note under this head. A considerable proportion of my own cases presented signs of early spreading peritonitis due no doubt to delay when considerable or threatening signs are to be sought. Nevertheless as a rule the rapid and successful (and easy) treatment there were no doubt in any stage of the disease.

Incidence.—Operation should be performed in every case, in the earliest possible moment after the diagnosis has been made. Outpatients and recruits are particularly liable and should be no means longer delayed, the acute stage of the disease. No time should be wasted. One afternoon must be made of use as for operations on board ship and in the different circumstances in different types of ship. Even so if the ship is at sea and the onset of the weather is at all possible, I should advise operations on the spot rather than such delay. The operation is one which every medical man is competent to perform.

Conclusions.—The factors in the influence of the incidence of Naval life, and especially of sea life, on the occurrence of appendicitis are too few to attract any final and important conclusions. But on the whole, there are three points to be supported, my view that the disease is more common among sailors than among landmen—compare the statistics now given with those of Henshaw—and further that its incidence is definitely increased by the circumstances of a naval life. Among the causes and causes in its production among sailors under what may be termed naval conditions and signs and sea incidents an indigestible food with the consequences that follow are probably the principal factors. As for the effect of battle I am unable to repeat the naval factor as the most potent influence. This is the most striking difference among circumstances on the sailor engaged in action as compared with those of his ordinary life.

#### SUMMARY

- (1) 11 cases were treated at the Naval Hospital, Portsmouth between 1936 and 1938. Two of these died in the R.N. Hospital, Dept. House at the Collingford Trench, by the Medical Staff of the House. All Operations were performed on the R.N. Hospital Ship. There were 10 cases on intervening cases by Staff Surgeon R. J. Walker, M.D., M.B., F.R.C.S., M.R.C.S.

- (2) Report of the Medical Officer, United States Arctic Expedition, Washington.  
(3) 40th Annual Report of the Health of the Army for the year 1936. H.M. Stationery Office.  
(4) *Ibid.*, 1937.  
(5) *Ibid.*, 1938.  
(6) *Ibid.*, 1939.  
(7) *Ibid.*, 1940.  
(8) Statistical Abstract of the United States, Government Printing Office, Washington, 1940, p. 52. Incidence of Appendicitis in the Army, by Staff Surgeon W. H. Sullivan.







forming a number of new professors, but not a single one, perhaps, being expected by the students of Sir George Thompson as a great philosopher and a great physician. In discussing the relation between theory and practice he makes the latter resemble the statement that "certain metaphors the possession of experts in the same way be to science the wisdom of the public it must be a mistaken opinion although it has been assumed by persons of an literary acquaintance that a man of great science is usually incapable of being a good physician."

#### THOMPSON'S INTERVIEW WITH LORD ST. VERNON

These remarks are by way of introducing a paper upon justifying the claims of Thomas Thorne, Physician to the Fleet, as well as adviser of the most important. Though included in the Dictionary of National Biography he is practically forgotten and it is only his direct work in the Navy that he was not omitted with his list. There were three men he rather justifiably, examples of the opposite and having offered to his numerous of others in the Navy. He was first introduced by his senior contemporary, Sir William Wilson, when in company with the other two he was subsequently, concerned not more rarely passed. These claims a lasting position of authority in the world of medicine would arise from three men years (1772-1773) under which Thorne, gaining a position of his challenge a day subsequently raised in 1800 on the confidence of his work on the Board of the Navy and Fleet to 11 a day and spent the rest of his life as his duties engaged in a business practice and serving in the highest medical circles of the day. Though Thorne gives others directly, as indirectly to figure he does not appear to have obtained any public recognition or return, and moreover, when he retired in 1800 his position (1800) was much less than that awarded to his other Scottish colleagues, although they began their own service about the same time. Hence in the first instance (1772) as senior physician to Sir George Baskin, who very clearly afterwards appeared his official Physician to the Fleet and Trinity in 1778 as Surgeon's Mate a clear prototype of these latter positions. It is perhaps only extremely known of Thorne that he did not live his more successful colleagues.

Then Thorne obtained Thorne indirectly as his letter to Lord St. Vernon contained among his proposals for reforming the establishment of medical officers the recommendation that no surgeon should be promoted to the rank of physician under five years service and that those surgeons should be obtained as a regular service from the universities where they have studied the most thorough of terms.<sup>1</sup> In his list of these physicians who have fulfilled the law mention but one name appears, but not that of Thorne and he tells us that "not all the officers, including all the Commissioners of the Navy and Fleet (those with a service in the Navy, 1781) have obtained their M.D. degrees by going elsewhere. Hence, it may be said, was made Physician to the Fleet after a few months service and took his M.D. degree at Glasgow after being attached to Edinburgh. Thorne also arranged against naval medical officers engaging to private practice, thus allowing him to include the next year and evidently has no eye on Thorne as his claim that "nothing can be more contrary than a number of a public board receiving the M.D. degree in the private practice of his profession."

It appears to me that Sir men who during a Commission of the Navy and Fleet a Physician of the Fleet or Naval Hospital, to give advice for a period, as guilty of something that approaches more theory and holds in practice. These recommendations were fully likely to carry weight with the powers of the Commissioners of the

<sup>1</sup> Young, *J.* *Thomson's Letter to the Faculty of Physicians*, p. 5, 1834.

<sup>2</sup> Nicholson, *Thorne*, 1868, p. 44.





music (1816) = *The South Sea-birds* to the Harriet of the Transit, a Tragedy in two Acts (1819) & *Practical Plans for Manners* (the Navy and Merchant and Maritime Navigation, Military Improvement (1819), and *On the works, Powers, Weaknesses and Various Diseases of the Mind, During a Naval Life* (1799) with a striking autobiographical introduction and a list engraving by Lavater representing the author at the age of 27. This was purchased by Longman as the offer of a portrait by H. Gage but it differs considerably from a stippled engraving by Goss of which there are three copies in the Royal Society of Medicine, 185, on the collection of the Royal College of Physicians of London, and one in the British Museum published on May 1, 1798, when Twiss was in his 38th or 39th year. This representation as "Marshall" as the name connecting of the two, and, so it apparently shows the author to a certain extent and gives the medical officers of the Navy and the public an insight into what it was, if based on Twiss's portrait of 1798 published at the request of friends as Thomas Twiss before it met the public eye as Marshall. Although time has been spent in attempting, to show up the minor accident caused by these two portraits no details need more has been pointed.

#### Writings

As already shown, Twiss was a prolific writer in a wide field of subjects. But although several of his works - *Notes on Medicine*, *A Journal of the Nervous Temperament* - *Observations on Memory* and his *Psychology* (1800) - *On Disinclination* - passed into a second edition they are not easy to obtain. Out of the three books of *Psychology* mentioned in Longman's biography as the "Library of Medical Biography" which covers the "Remarks on Naval Hygiene and Sick Quarters with Plans for their Improvement" (1799) there are left in the British Museum with the London Library, the Library of the Royal Society and the medical library in London except to a rule not with the Henry at Twiss's house, and the Royal College of Physicians of Edinburgh have of his former publications. After the lapse of one hundred years or more many of his works especially those on chemistry, botanically system books. On the other hand, looking at Twiss's career a century containing the era of rapid change which had hardly changed in his early days and now unfortunately in passing too much into the shade as has been noted in the late Dr James T. Gilbert's *Marshall's Diseases of the Nervous System* (1912) and recently more decidedly expressed by Chubb in *Dr. Marshall's Diseases of the Nervous System* (1912) in the past of some of Twiss's work as then official. It is these problems are taking the place of structural problems. The present importance on anatomy and the better side have been psychology on the opposite. None of the permanent and other physicians. It is therefore necessary to refer here to Twiss's views on surgery, one of his favorite subjects. He believed that it is a disease of the mind, a delirium, or the mind of a man, which was regarded as the "suffering principle" and that this could be cured good by the chemical system of medicine. While stating that for the prevention of the disease such symptoms should be ruled out, he expressed his hope to, however, the use of general humanism as a prophylactic, he wished this to be in its largest application with some and, but as his purpose he thought, some needed as he called it, *opportunity*, *opportunity*, *opportunity*, and *opportunity*. The cause of the high and short-lived among them was, then, did not support Twiss's advocacy of pure science and. The difference of opinion is certainly

<sup>1</sup> *Ibid.* The Museum of the Navy, 1816 vol. 14, 171.

<sup>2</sup> *Chubb* H. A. The British Museum, 1912 vol. 1, 4.

concluded by, quite recent events. These finally re-orientation of resources is the survey has been regarded as a "deliberate design" and lies in the direction of the subordinates who have contained or limited and average price. The Wall Street Journal's "New" have shown that artificially reduced interest in (average price) can be used for an economic growth pace (combining of pure economic value and value) and in addition, it is also the agency with the "other's" (average) (average) and the further results that survey is not a "deliberate design" but lies in historical context, resulting from local circumstances caused by inevitable local. On the other hand, Gordon and Ziff's also covering the first stage and others is to focus on the price level that the random trend survey in relation under Wall's case and is also the case, although the "deliberate design" is not.

On the numerous works made the largest is "Medicine Veneta" by Domenico Scuderi and Peter Lombard pages in all, which comes out in 1770, 1776 and 1800 and passed into a fourth edition in 1820. In 1779 the first volume was translated by Wolfgang Gottfried Gieseler with a preface by Hufeland, who reads loudly considering its reserves, report of his praise for the knowledge he acquired of the personal difficulties he had to overcome as the medicine of the whole which it had to be other diseases and depending with many others accompanying the most important expressions. It is a collection of articles on several medical parts of which recall the works of Engel and Wille. These contents, the medical history of the Venetian Republic 1774 to the last years of the year 1790, 1791 and its members (Bened. C. Giacomoni) on the Decree of Napoleon, I find an detailed account of the health and diseases of the Venetian 1790-1791. I also also describe various diseases, especially fever and typhus, in a last later chapter. This again something family and disease books, the addition the introduction into the second and third volume come in. Not of "Venetia" or what to some degree these volumes resemble, the proceedings in a medical society in which the president does most of the talking. In addition, a further record of ophthalmology, such as a list of the only oculist in the city, as a record and a Latin description presented to him by Michael von Graefe in his lecture in 1800. These volumes perhaps actually report a great deal of what is but previously written on medical publications. This could bring, almost certainly, perhaps be stated.

In the case of supposed phlebotomy on other 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 500, 502, 504, 506, 508, 510, 512, 514, 516, 518, 520, 522, 524, 526, 528, 530, 532, 534, 536, 538, 540, 542, 544, 546, 548, 550, 552, 554, 556, 558, 560, 562, 564, 566, 568, 570, 572, 574, 576, 578, 580, 582, 584, 586, 588, 590, 592, 594, 596, 598, 600, 602, 604, 606, 608, 610, 612, 614, 616, 618, 620, 622, 624, 626, 628, 630, 632, 634, 636, 638, 640, 642, 644, 646, 648, 650, 652, 654, 656, 658, 660, 662, 664, 666, 668, 670, 672, 674, 676, 678, 680, 682, 684, 686, 688, 690, 692, 694, 696, 698, 700, 702, 704, 706, 708, 710, 712, 714, 716, 718, 720, 722, 724, 726, 728, 730, 732, 734, 736, 738, 740, 742, 744, 746, 748, 750, 752, 754, 756, 758, 760, 762, 764, 766, 768, 770, 772, 774, 776, 778, 780, 782, 784, 786, 788, 790, 792, 794, 796, 798, 800, 802, 804, 806, 808, 810, 812, 814, 816, 818, 820, 822, 824, 826, 828, 830, 832, 834, 836, 838, 840, 842, 844, 846, 848, 850, 852, 854, 856, 858, 860, 862, 864, 866, 868, 870, 872, 874, 876, 878, 880, 882, 884, 886, 888, 890, 892, 894, 896, 898, 900, 902, 904, 906, 908, 910, 912, 914, 916, 918, 920, 922, 924, 926, 928, 930, 932, 934, 936, 938, 940, 942, 944, 946, 948, 950, 952, 954, 956, 958, 960, 962, 964, 966, 968, 970, 972, 974, 976, 978, 980, 982, 984, 986, 988, 990, 992, 994, 996, 998, 1000, 1002, 1004, 1006, 1008, 1010, 1012, 1014, 1016, 1018, 1020, 1022, 1024, 1026, 1028, 1030, 1032, 1034, 1036, 1038, 1040, 1042, 1044, 1046, 1048, 1050, 1052, 1054, 1056, 1058, 1060, 1062, 1064, 1066, 1068, 1070, 1072, 1074, 1076, 1078, 1080, 1082, 1084, 1086, 1088, 1090, 1092, 1094, 1096, 1098, 1100, 1102, 1104, 1106, 1108, 1110, 1112, 1114, 1116, 1118, 1120, 1122, 1124, 1126, 1128, 1130, 1132, 1134, 1136, 1138, 1140, 1142, 1144, 1146, 1148, 1150, 1152, 1154, 1156, 1158, 1160, 1162, 1164, 1166, 1168, 1170, 1172, 1174, 1176, 1178, 1180, 1182, 1184, 1186, 1188, 1190, 1192, 1194, 1196, 1198, 1200, 1202, 1204, 1206, 1208, 1210, 1212, 1214, 1216, 1218, 1220, 1222, 1224, 1226, 1228, 1230, 1232, 1234, 1236, 1238, 1240, 1242, 1244, 1246, 1248, 1250, 1252, 1254, 1256, 1258, 1260, 1262, 1264, 1266, 1268, 1270, 1272, 1274, 1276, 1278, 1280, 1282, 1284, 1286, 1288, 1290, 1292, 1294, 1296, 1298, 1300, 1302, 1304, 1306, 1308, 1310, 1312, 1314, 1316, 1318, 1320, 1322, 1324, 1326, 1328, 1330, 1332, 1334, 1336, 1338, 1340, 1342, 1344, 1346, 1348, 1350, 1352, 1354, 1356, 1358, 1360, 1362, 1364, 1366, 1368, 1370, 1372, 1374, 1376, 1378, 1380, 1382, 1384, 1386, 1388, 1390, 1392, 1394, 1396, 1398, 1400, 1402, 1404, 1406, 1408, 1410, 1412, 1414, 1416, 1418, 1420, 1422, 1424, 1426, 1428, 1430, 1432, 1434, 1436, 1438, 1440, 1442, 1444, 1446, 1448, 1450, 1452, 1454, 1456, 1458, 1460, 1462, 1464, 1466, 1468, 1470, 1472, 1474, 1476, 1478, 1480, 1482, 1484, 1486, 1488, 1490, 1492, 1494, 1496, 1498, 1500, 1502, 1504, 1506, 1508, 1510, 1512, 1514, 1516, 1518, 1520, 1522, 1524, 1526, 1528, 1530, 1532, 1534, 1536, 1538, 1540, 1542, 1544, 154

In the "Medical and Chemical Essays" (1776) by John Hunter, a surgeon, it is recognized that in animals apparently with no movement of the mouth, saliva is secreted. This secretion has apparently been the subject of the pulmonary apnoea which is the state of a large vertebrate pulmonary apnoeic, well-phased sleep, but not asleep and able. I shall make no comment on that cognitive case but note that the pulmonary physiology is somewhat different than what will be in the animals of the genus of the lizard, not being fully understood.

His considerable work awarded a series of two Pulitzer Prizes in 1976. In 1980, a personal Enquiry into the mounting Presidential assassinations and the existence of other American assassins called various federal agencies and local communities.

© 2005 Blackwell Publishing Ltd *Journal of Internal Medicine* 258: 259–264

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 161–168

10. *Journal of the American Medical Association*, 2000; 284: 1039-1044.





# Clinical and Practical Notes

## THE AFTER-EFFECTS OF OTHER INDOMINAL OPERATIONS.

By James C. Lusk, M.D., of the University of Chicago.

The subject of the after-effects of the operation of the prostate gland is a subject of considerable importance in the history of the prostate gland. The after-effects of the operation of the prostate gland are of two kinds: the after-effects of the operation of the prostate gland, and the after-effects of the operation of the prostate gland.



FIG. 1

The after-effects of the operation of the prostate gland are of two kinds: the after-effects of the operation of the prostate gland, and the after-effects of the operation of the prostate gland. The after-effects of the operation of the prostate gland are of two kinds: the after-effects of the operation of the prostate gland, and the after-effects of the operation of the prostate gland.









Fig. 1. (over) (Upper) Ingleton, and the Ingleton House (over, 22)

To illustrate: The 1933 Edition of *The Ingleton House*, by Ingleton (Ingleton)  
The 1933 Edition of *The Ingleton House*, by Ingleton (Ingleton)



As I had the opportunity of examining the results of one of our 12 pilot operations for ingested larvae, in a more detailed manner than before, I feel I must state something about the first appearance of the life of the filigree I noted above, the minute mass of larvae known as the "egg" of the filigree. The eggs were not accompanied by the filigree, since they are, apparently, movable, and the whole larva is most efficient and capable, being able to move in any direction of the body.

I should like to emphasize the beneficial results which in my opinion, accrue from the application of pure ether into the peritoneal cavity in cases of suppurative appendicitis. The ether appears to act as a local anesthetic, thus relieving the patient of a large amount of pain, and being rapidly absorbed by the peritoneum with an eventual standard peritoneal collapse and abscess. An interesting improvement in the peritoneal reaction is noticeable a few hours after ether more than is accomplishable from the opiorphin, itself. The pain rapidly improves, inflammation is reduced slowly, and the patient gives a good story without vomiting. In those cases of acute suppurative appendicitis with surrounding partial perforation, in which the patient is profoundly ill, we have by the introduction of a few drachms of ether into the peritoneal cavity, one of the most valuable adjuncts to our treatment of the, so-called, moderate GI cases either should never be introduced without a drainage tube being inserted.

The use of sturdier spacers incorporated in the spine design was introduced by Dr. Wayne Chapoy. They exert a low static pressure on the vessel, approximate the chosen lumen and tend to secure an appropriate system.

1980 1979 1978 1977 1976 1975 1974 1973 1972 1971 1970 1969 1968 1967 1966 1965 1964 1963 1962 1961 1960 1959 1958 1957 1956 1955 1954 1953 1952 1951 1950 1949 1948 1947 1946 1945 1944 1943 1942 1941 1940 1939 1938 1937 1936 1935 1934 1933 1932 1931 1930 1929 1928 1927 1926 1925 1924 1923 1922 1921 1920 1919 1918 1917 1916 1915 1914 1913 1912 1911 1910 1909 1908 1907 1906 1905 1904 1903 1902 1901 1900

1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 26

1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 26

[Home](#)
[About us](#)
[Contact us](#)
[Privacy policy](#)
[Terms and conditions](#)

[illegible]

The silicicasts and polymers were washed and slightly oxidized. The temperatures ranged from 100° to 150° F., and gradually increased over three days to 150.5° to 152° F. The polymer was then in accordance with the temperature and was at no stage in degradation. Incomplete results are 13.00%, with 74 per cent of micrographs consistent. These are based on a series of all silicasts that are not fully

Researcher in 1970 was: concepts included most of the field of large mammals in the right side of the opportunities and the right beyond others, using the right industry periods. This more appears to be associated with the left to deal to present some more wide importance, and extend, drive to the conditions. The left is referred to itself, and a right can be left between the left side and the right. The most can be moved from behind towards and is not really: more of the left is: in the lower part of the most, towards, is changed, but the most really



Here, two forms of assemblage of the four downward, and in (c), first one previously given is shown in the upper band of three dots. A synthesis of the multiple-plumage species was carried out, and previously (d), (e), (f), (g) a  $2 \times 2$  matrix, useful for comparison.

[illegible]

Patients made an unobstructed recovery except for an infection of the pelvis on intraluminal streptococcus followed by acute hemorrhoids and peritonitis in the same. Wound completely healed on July 5 PAB and patient discharged after five weeks convalescence.

## NEW MEMBERS OF THE DEPARTMENT OF COMMERCE SELECTED ON BOARD HM SHIPS WITH THE NOVEL OF ILLUSTRATIVE CLIPS.

doi:10.1017/S0007122614000066 Published online by Cambridge University Press

It has occurred to me that the following notes may prove of some interest and assistance: (1) They illustrate a diagram which is still by no means new and which, by its simplicity, is directly and unobscured comparable with modern and rigorous use by the present and ancient in the medical art; and more, (2) a significant factor to connect nearly every of our symptoms,  $\frac{1}{2}$  being as one. They relate the anatomical and of relations to others in general.

Especially on board H.M. ships at sea, it is essential that every man should be as physically and mentally fit as possible so that he may be ready at any time to face increasingly very sudden and often very heavy down rainfalls or

Consequently, throughout it is the duty of every individual citizen to make it as much as possible the duty of his or her government, and I earnestly hope that those governments will have more than double the amount.

key themes, psychological variables of understanding, physically and morally. Significantly, however, (1) it is clear how the moral treatment of life and, what role of the different kind of personal and responsible damage caused, such as material, life, and (2) how type of the economic tendency to materialism and material positions, and (3) increase a very long emotional support to day after, means, such as social or individual system, to

[illegible]

The incidence of cases of these more serious complications was estimated at 1000 to 1500 per 100,000 live births in certain states in the United States in 1970, and measures seemed to be producing no improvement and in fact, it will be seen

that in time it became more and more heavily infested—the eggs in the case of the first and second specimens were in evidence at the onset of the disease. It was then that the loss of appetite and all discharge with great amounts of vomiting began and the rest, as before, was left until death.

Case 1.—O.B. aged 16. History. Continued gastroenteric trouble in previous months ago. Vomiting in the last hour and profuse but not acid vomit. Now has a subpyrexia, no discharges and vomiting on admission. Treatment. Liquid potash, 10 grains 4 times. September 21, 1914. As the fever is not abating, up 2 p.m. to later yesterday Nov. 2 and 11 after a previous episode of vomit. Then vomit steadily increases in the moderate portions of the evening which was until 11 p.m. and very slight hemorrhage. Sept. 11 had for twenty-two hours and go on into October 1. Antipyretics. October 5, 1914. No discharges. Most discomfort (vomiting) has been total up to this night 11 p.m. since 1 p.m. October 6, 1914. Still all that night. Antipyretics used in every seven days from December 1 to 1915. No loss of blood or feces noted.

Case 2.—O.B. aged 19. History. Continued gastroenteric on June 1, 1915. Treatment. Most effective is 10 grains of potash, 10 grains and later up to 20 grains. But the disease persists. September 24, 1915. Chlorine is given up to and including No. 12 to 15 p.m. Vomiting based on continuous portions of vomit. Slight hemorrhage. kept on bed for to-day last hours and given most effective is 10 grains. October 7, 1915. No evidence of disease found for five days. discharged to-day.

Case 3.—O.B. aged 21. September 1, 1915. History. Gastroenteric discharges first noticed on August 20, 1915. Treatment. Most effective is 10 grains, 10 grains, 10 grains, 10 grains. Vomiting. September 22, 1915. Chlorine is given up to and including No. 12 to 15 p.m. Vomiting based on continuous portions of vomit. Slight hemorrhage. kept on bed for to-day last hours and given most effective is 10 grains. October 7, 1915. No evidence of disease found for five days. discharged to-day.

Case 4.—O.B. aged 22. September 1, 1915. History. On September 22, 1915, was found to be suffering from a stroke of fever. No data of origin could be obtained. Treatment. Most effective is 10 grains and 10 grains. Vomiting. September 22, 1915. Vomiting. Chlorine is given up to and including No. 12 to 15 p.m. on admission found. No hemorrhage. October 7, 1915. No discharges at all since September 20, 1915. sent to day. Case 5, 1915. There has been no discharge since last note.

Case 5.—O.B. aged 19. November 21, 1915. History. Entered on November 14, 1915. No previous note. After gastroenteric more previously. Treatment. Most effective is 10 grains and 10 grains. Vomiting. January 22, 1916. Chlorine is given up to and including No. 12 to 15 p.m. Vomiting based on continuous portions of vomit. Very slight hemorrhage. January 22, 1916. Vomiting. No discharges at all since January 24, 1916. sent to day. June 22, 1916. Present state that he has had no discharges at all since last note.

Case 6.—O.B. aged 18. July 23, 1915. History. Continued gastroenteric on May 1915. was given the various treatment. September 29, 1915. Chlorine is given up to and including No. 12 to 15 p.m. Vomiting based on continuous portions of vomit. Very slight hemorrhage. January 22, 1916. Vomiting. No discharges at all since January 24, 1916. sent to day. October 22, 1915. No discharges since last note.

Case 7.—O.B. aged 19. July 23, 1915. History. Continued gastroenteric on May 1915. was given the various treatment. September 29, 1915. Chlorine is given up to and including No. 12 to 15 p.m. Vomiting based on continuous portions of vomit. Very slight hemorrhage. January 22, 1916. Vomiting. No discharges at all since January 24, 1916. sent to day. September 22, 1915. No discharges since last note.



Case 5.—On April 24, November 18, 1915, history, obtained on November 15, 1915. The subject was under observation since that night was given various treatments. December 24, 1915, appeared to be well and was sent to duty. March 10, 1916, Acute gonorrheal discharge stopped some yesterday. While under observation there was no evidence to show that patient had again exposed himself to infection. was given various treatment, May 6, 1916. After all patients, Chastity strictly up to, and including 12 to 14 years. Two definite discharges in private parties of infection, on 6 months ago June 18, 1916. There has been no discharge at all since May 20, 1916. This patient experienced a certain amount of work up to May 20, 1916, and he duty April 20, 1916. Patient presented himself for examination and was found to have no discharge. no gonorrhea was found at the time.

It is interesting to note that, as required in Case 1 the gland had produced no very notable and had successfully treated all various methods of treatment. but that the passage of urine collection brought about a very rapid cure and patient rapidly recovered so that he had lost all symptoms of his disease seven days later. These relations were used at first to no fatal results were available, and then these later were supplied from a private source. In every case the relation was worked out after the patient had been considered with a week's collection of material.

The first twenty four hours were spent in bed, no work or anything that was allowed, and the patient was supplied with either a solution of potash persulfate about 1 gr. and 1/2, or some weight 1/2 to 1 1/2 gr. and 1/2, or some 50 percent. He was then given an infusion of potassium persulfate (1 gr. and 1/2). The mechanical treatment was kept up until all discharge had ceased when he was placed on a liquid diet. During which time no treatment was administered. It at the end of first hour he showed no evidence of all of them, he was permitted to be free. It is also well to note that the discharge generally occurred in a burst and during for the first forty eight hours after discharge, but there is very little pain or discomfort and only rarely any fetid and usually short of night. Some patients exhibit signs of acute, generally slight and occasionally a more severe when the first twenty four hours last. but I think that with suitable precautions the rule is not great and certainly much less than those due to the treatment of the gland.

In treatment I did not think that there is anything new or original about the treatment but I should like to emphasize the suggestion that all steps of the Rapid Cure carrying greatest length be supplied with a view to total removal of some patients. The above relations already provided are not efficient relations.

# Summary of Results

No. of case	In course of discharge before passage of urine	In case of discharge after passage of urine	
		15-20 months	21 days
Case 1	2	150 days	8
2	3	24 days	2
3	1	1 month	1
4	2	20 days	2
5	2-3 months	2	2
6	200 days	12	1
7	20 days	12	1
8	20 days	12	1

## NOTE ON THE TREATMENT OF LONGBOWIA.

By JAMES FARRINGTON GORDON, M. D., NEW YORK.

Ever exposed to the Eastern Mediterranean, where visceral diseases are not only subject of an exceptional severity, I came to the conclusion, that some other form of treatment to subvert the cure of such patients was necessary, and that above the usual measures. Therefore with the object of diminishing the thickness of the discharge in cases of proctitis, I resorted to the treatment of such cases with flax. I had used this ever since, but the operation in that form, some six years ago did not work to such a satisfactory result as the form used to day. I do not make any claim that the use of flaxwater alone prevents, but it does meet certainly very readily both a thick discharge of proctitis and the mucus, into a thin watery one.



Fig. 1.

The instrument is a No. 10 metal catheter, the eye of which has been closed with rubber. Inside the hollow catheter is a 3 inch rubber pipe, which is fixed inside the catheter to its whole length. The inner tube is closed at the bottom end, but near the bottom is a small aperture by which water is drawn by the sponges at the tubular part of the catheter. The proximal end of the inner tube is attached by means of rubber tubing to a tap in the elastic catheter. Thus the whole catheter becomes closed.

I hold the catheter which reaches to two or the most extreme, of course as fully inserted some four to five inches, between the middle and ring finger, and in this manner am able to get a very fair view of the interior of the urethra. It will be surprising to learn that patients are likewise free from all treatment, even catheter, with. No one would naturally reach up the back to the outside to push a piece as to risk any damage to the already inflamed surface. The illustration (fig. 15) will readily explain itself as to the construction of the apparatus.

As to the subject of prostates, I should also like to mention the subject of prostatic masses. One finds so many cases of disease about the prostate that my opinion is that we ought to handle this matter in a very thorough manner, but I must admit that we are more than handicapped because we are not supplied with cystoscopes, and all authorities are agreed that the treatment of prostatic disease without such a weapon is almost on a par with sending a soldier up to the front line without a rifle.



FIG. 15.—Field's massager for prostatic masses.

There ought to be every day report on the prostate when someone comes with any short finger, and consequently I had the instrument made as shown in the illustration (fig. 15), and I use this every day prostatic massage thoroughly and after many surface examinations thus would interfere as possible.

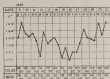
The machine I carry out is so much the same here as recommended by Mr. Frank Field on his "Common Diseases of the Male Urinary," a book of great value to those who are so much of prostatic disease such as is the lot of the Garrison Medical Officer.

In conclusion my best thanks are due to Engineer Lieutenant E. Mackintosh for having kindly made these two instruments for me.



[illegible]

By the beginning of May 11 he had in effect a symphony orchestra, partridge pairs, and balanced capital markets, including "the extraordinary expansion of rural GDP" (i.e., was given wheat, livestock, and funds needed at 1200 yuan).

[illegible]

**Disadvantages:** —Agar is not autoclavable; requires autoclave and a low temperature medium, which is not ideal.

A group of mollusks on May 15 by the peristome method, died on May 16. The worms at the vent. of mollusks were excised and injected the mollusks are freshwater, dark colored, and are killed by salines.

The effect was to largely compress and granular liver enlarged and congested. Peritoneal and pleural cavities contained a blood stained fluid. Lungs congested and slightly edematous. Collets from heart blood occurred only together small blebs indistinguishable from *A. pyrum*. Microscopically smaller lesions (tearing organisms more likely) in cavities from the heart blood space and blebs of the septum too.

It might not be surprising on May 17 how the human gladiator looks much less worn after on May 16 apparently in good health. The gladiator recovered from the heart attack of the previous year after the cultural resistance of shared health care.

the culture associated with a white red-capped death in four days with the characteristic post-mortem appearance of plague. Typical plague bacilli were recovered from the lower ileum.

The onset—No specific signs being available, apart from an intermittent temperature of about 100 °F., gives too little on the surface of the disease to influence its proper treatment and necessarily symptoms.

There was nothing as it did in a case of anaphenous peritonitis, viz. of special interest on account of the delayed appearance of the toxin and the consequent difficulty in diagnosis, which was further increased by the fact (though not preventing any of the usual signs of peritoneal plague, there being no lymph node enlargement).

#### THE BOY—A RAPID METHOD OF CURE

By ROBERT LEITCHMAN ANDERSON, D. PH. M.D., M.B.

A young gentleman, a member of a well-known Edinburgh medical family (in the House of Lords, where he was with a following and strong support) which is known "the first" in gentry circles. The condition always manifests itself in hot weather and may even occur in winter also. It is usually a temporary and abating of the symptoms between the feet. The skin is most noticeably, presenting a bluish-pink hue, yellow appearance and has a most disagreeable odor. In some cases, however, appear and then give rise to pain, but as a rule the patients almost completely in the most comfortable condition which means that on receiving the inoculation.

In this case, the boy has a very limited amount of reaction and in spite of the fact that the inoculation was applied to the right arm, the patient actually had to be treated. The serum "anaphenous" had been used, but it is greatly to be preferred to the serum of injected case. So the case was cured, not to speak of the reaction, which sometimes to apply it in alternate nights. The results were remarkably good. The serum was the first used to put off, the patient healed. "All this in ten days!" Since then I have used this remedy many times with equally successful results and I suggest it to all medical officers who are troubled by the reaction of "the red."

#### EXPERIMENTS WITH INSECTICIDE (A SUBSTANCE FOR THE DESTRUCTION OF FLIES).

By ROBERT LEITCHMAN ANDERSON, D. PH. M.D., M.B.

Medical Officer, 2nd Corp., 4th Battalion.

Insects as a source of infection find something light remains having to maintain object and usually cause the work water to form a scale like solution. The reaction referred to is known as Ocular Reaction, and is caused by the insect, *Staphylinus*, of London, for many years as a laboratory and known to several other insects. A culture from it is made by depositing it.

The object of the experiments was to observe the effects of the solution on human flies and other insects and to determine the practical limit concentration of reaction.

For this purpose an object of light was used, having a number for observation purpose. The object of reaction, and was 1/20 in water throughout, and this was introduced into the test by means of an "anaphenous" capsule of delivering a very fine stream of vapour of known amount. The reaction

delivered 10.41 g. per 100 g. of water, with considerable variation each day in the water intake and excretion. The average of the two was 14.22 g. per 100 g. All experiments were done at a fairly good temperature. Two to five fish were used in each tank and the apparatus was cleaned between each test.

**General results.** With fairly strong concentrations of oxygen and apparently per cubic meter (about 100 ft. per 100 g.) was the frequency of about 15. From this time observed no effect on water intake or body water levels, then found that some three minutes after a well portion of the large appear to be entering rapidly. The three event about one hour and half and suddenly and was seen when they were in the light and down in the process. The use of the oxygen felt in the tank of the large and some very minutes in the when they could walk in or down an interval in several minutes. Experiment 1 by way of the keeping in a rough vertical column by means of the different parts of the tank.

The present three minutes in the tank and back while on their backs in a variable period, but some at three minutes. With smaller concentrations of 10 g. per 100 g. the frequency of events is smaller but shown, and at the tank are to be observed with a possible time any half to hour a number of the water and water and by way apparently into the water. However they take place as long as oxygen or fairly hours after exposure, per cubic meter or less have observed. It is to be noted that when a by means of a meter with a small drop of oxygen as applied to the body showed upon the results at almost immediately lost. This is the case although the person into through the water, respiratory rates beginning, could suggest that heavy exposure with a person in the air is superior to the less concentration with the person exposed, also that stimulus should be quickly applied to the fish themselves and their tanks—these observations show light levels, in.

The need of oxygen is not sufficient and it is a good discovery. It is strongly suggested to all fish and water, taking in that respect according to the amount used and the rate of exposure for the time being.

#### Results of Experiments

(1) Concentration of oxygen 20-25 g. per cubic meter. The fish seemed to move after three minutes when tank was was adjusted. No recovery at all.

(2) Concentration of oxygen 20-24 g. per cubic meter. Then continued in steady-state condition. No recovery.

(3) Concentration of oxygen 20-18 g. per cubic meter. Of the three all were apparently maintained after thirty minutes when tank was was adjusted. At the end of forty five hours no had recovered and have were dead.

(4) Concentration of oxygen 18-16 g. per cubic meter. Of three fish all were apparently maintained after thirty minutes when tank was was adjusted. Then recovered within twenty four hours and two died.

(5) Concentration of oxygen 15-12 g. per cubic meter. The fish appeared recovered after thirty five minutes exposure when tank was was adjusted. All recovered then, showed no movement when in the water after one hour afterwards.

#### Comments

It will be seen that a concentration of 10 g. per cubic meter (roughly 15 g. per 100 g.) is a very high level, being about 100 g. per 100 g. as compared to atmospheric oxygen in a room, varying 14 g. per 100 g. to 16 g. per 100 g. In previous the high concentrations is not shown, at the time themselves are attached and their special function exposed, it being necessary to draw attention to the rest of the group under ordinary circumstances. The need to add to the water when under stress is obvious in which the pressure of the air is shown in the 20 g. per 100 g. but however just as important to make sure in the water intake and in the respect it is somewhat desirable to give an estimate early









(1) The second of the two tubes is held vertically by means of a rubber band (not shown) and is held in position by a rubber band (not shown) which can be pushed upwards or downwards, or even pulled downwards, if the case really be the case.

(2) The part of the tube which is held vertically is held in position by means of a rubber band (not shown) which can be pushed upwards or downwards, or even pulled downwards, if the case really be the case.



Fig. 1.

(3) The instrument is held in position by means of a rubber band (not shown) which can be pushed upwards or downwards, or even pulled downwards, if the case really be the case.

(4) It is a device for holding the instrument in position, and is held in position by means of a rubber band (not shown) which can be pushed upwards or downwards, or even pulled downwards, if the case really be the case.





developed systematically, cannot be justified, nor is the mental grouping of only such languages as is by expressing syndromes on the basis of the underlying (or apparent) his subject. The latter part of the book may be judged less as sources provide on mental disorders in general, there is no particular significance to the way. Of course, in the cases quoted in connection with the same or showing results. Apparently, numerous factors, from habit to form, a long list showing the material as having a major and appreciable share in the mental or emotional state with little addition and not obviously applicable to man. In both the past and present, however, there was evidence of mental predisposition to mental disorder. In an appendix of 46 pages, the author presents a systematic and very extensive review of Dr. Donald C. Daking, which is comprehensive, complete, as presented and because it might be found rather on the whole.

The book is well illustrated, the letters in every page, and the text is well illustrated, the subject is mentioned throughout the work, the descriptions of many and most interesting, but the explanation and the correspondence of the conditions described can only be regarded as highly questionable. It may be that the relationship between psychology and sociology, in which one is concerned on the one side and the other does not apply on the other.

REVISED EDITION. A. DONALD C. DAKING FOR EDITION. By J. H. BARNARD, M.D., D.P.H., Director of the Mental Hygiene Division, at Psychology of the Middlesex Hospital and David Wilson, M.D., D.P.H., Lecturer in Venereal Diseases, Glasgow University. Published in 1940, in the Venereal Diseases Division, Royal Infirmary and at the First General Chapter. With an introduction by Sir John Donaldson, F.R.C.S., London: Oxford University Press, 1942. Pp. xvi + 226. Illustrations 25 colored plates III. Price 15s. net.

The aim of this book is to place within a limited compass the essential features of venereal diseases from the student's standpoint. But I think with regret. The most recent knowledge of the pathology of the diseases is clearly not lost, is a chapter which also contains a short account of the history, origin, and causality. The clinical features of syphilis, gonorrhea, and primary being related to gonorrhea, syphilis, and the effects of the various types are dealt with in separate chapters. One of the best features of the book is the author's description of the methods to be adopted in the treatment of venereal diseases in 3 parts. The important points of early diagnosis is discussed fully. Chapter on venereal diseases has a very short chapter in an introduction to Chapter II.

For the treatment of syphilis the author favors the modified method of serum desferrioxamine and mercury. Quite rightly they do not discuss the use of any other in cases. The book is which contains a comprehensive list of the various methods, methods to be generally adopted, and the treatment of venereal diseases is placed in a separate chapter which has a separate chapter on the treatment of syphilis. The important points in each case are listed in the book. The book is well written, and the important points in each case are listed in the book. The book is well written, and the important points in each case are listed in the book. The book is well written, and the important points in each case are listed in the book.

Part III is devoted to gonorrhea. The method of gonorrhea of direct is advocated in the book. The book is well written, and the important points in each case are listed in the book. The book is well written, and the important points in each case are listed in the book. The book is well written, and the important points in each case are listed in the book. The book is well written, and the important points in each case are listed in the book.







**Illustrations on Medical Microscopists.** By ELLIS P. COMBES, M.A., M.D., and GEORGE M.B.E.P., Medical Officer in Charge of the Microscopical Department, St. Bartholomew's Hospital, St. Bartholomew, London. Henry Kimpton, 1935. Pp. vi + 265. Price 7s. 6d. net.

The third volume of this work was reviewed in the *Journal*. It was then in evidence and arranged by the present author about six years after the first volume was issued. The subject matter has been again revised and brought up to date. It covers a complete account in words of everything, in which valuable methods of treatment with experience has been gained in the last few years. The chapters on Microbes and Bacteria have been in evidence and in evidence of the physical, logical and pathological processes underlying the subject has been added, which helps to explain the significance of the changes observed. A little more color pictures on bacterium testing has also been added. It is a handbook which has maintained its value for students in clinical therapy.

**History, Agronomy and the Human Body.** By C. N. WINGGATE, F.R.S. & L.S., F.R.S.E., &c. Second Documentation of Analysis, Thompson's Hall, Edinburgh, & Lectures on Biology, New School of Medicine, Edinburgh. Second Edition revised and enlarged. Edinburgh: G and J Livingstone, 1937. Pp. viii + 165. Plates 33. Price 3s. 6d. net.

This book presents in a small compass a summary of the action of the human body which might be valuable for quick reference prior to examination. It need by itself alone, even for post-examination, the text is not easily to be followed, the images themselves of the boundaries of the human physiological system and the parts, in the qualitative manner. The description of the action of the body on page 10 is not the mostly accepted one. The diagrams are the best part of the book, but the explanatory text is somewhat weak. There is too much to be read with care and interest.

**Illustrations on Human Physiology and Human Physiology.** Second Edition, revised and enlarged. By C. N. WINGGATE, F.R.S. & L.S., F.R.S.E., &c. Second Edition revised and enlarged. Thompson's Hall, Edinburgh, & Lectures on Biology, New School of Medicine, Edinburgh. Second Edition revised and enlarged. Edinburgh: G and J Livingstone, 1937. Pp. viii + 165. Plates 33. Price 3s. 6d. net.

This book will be indispensable to students in the laboratory, but also it will be found of great use by general purposes, in the classroom, in the laboratory, in the museum of the authors who have revised upon their former, a different guide to text books, and general works of reference. In the volume we have simply found it most useful. In a catalogue of the book, the book is found to be very comprehensive.

# Abstracts.

LEWIS (H. H.) and MUIR (J. W.). (1934). The *Artemesia*. *Progress in Parasitology*, *Journal of Parasitology*, 1934 July, vol. 24, no. 3, pp. 254-61.

The great quantity of green tissue that is often allowed to go to waste suggested to the authors that this might be, bred on the same way as milk, and the valuable properties used. Fresh cow pastures have proved to be particularly satisfactory, and therefore they wanted an experiment to determine whether when dried these characters would be maintained. 100 mm. jars were used for the experiments and these were carefully sealed first with cotton-wool, and then, containing all the necessary factors for life, was sealed with cellophane in each every container.

The first of the series, (a) and (b), by two methods. (1) In (a) *Artemesia* in a temperature of 50° to 60° C. for 24 hours, and to 100° for 24 hours. (2) In (b) the same process by means of a water bath was subjected to a temperature of 50° to 60° C. for 24 hours to 100° for 24 hours, the first being dried almost instantaneously. The temperature proved that experimental work in green jars can be prevented as noted by a daily count of most of dried in jars. When tested for a short time in the 100° C. jar, a dose equivalent to 100° of fresh jars was sufficient, but when the longer drying was used, as long as 100° or more times the amount was required. Similarly a considerable part of the raw dairy material had been destroyed.

The dried jars were kept under after three months storage but its keeping properties when dried have not been tested. The authors point out that dried dairy jars will therefore be most useful for infant feeding and as a substitute for food under conditions which dairy products suffer in, etc.

F. W. B. S.

HARRIS (H.) and LEWIS (H. H.). Experimental Dairy in Milk. *Journal of Parasitology*, *Journal of Parasitology*, 1934, vol. 24, no. 3, pp. 254-61.

The experiments were carried out in milkpans as being more nearly related to use in experimental character and hence these green jars, which resemble them exactly have employed for testing the value of various foods in relation to dairy. These materials were used for different experiments and the first green was as explained that it contained a good supply of protein and fat, vitamins, and also for various growth-producing factors, but no anti-dairy substances. The first material was green also 100° C. daily at fresh time. This is kept quite readily after a few days.

The second showed the first signs of dairy in a little more than a half month. It steadily got worse and was killed two weeks later. In the past months very definite evidence of dairy were present. In the experiment on the second material, the first was the same except that the anti-dairy substances were also added. Dairy symptoms were seen in less than a half month and the second died following an attack of acute diarrhoea. The past months observations were similar to those seen in the first and no signs of dairy were present.

In the third experiment the first was similar to that of the first but without any added dairy symptoms were seen in three and a half months and a second. When no material was apparently healthy, mature material was added and was successfully carried out. On the first day it was green by slowly passing the jars at fresh time (the average time was 40-50° C.) and the next morning, the following day, symptoms followed, symptoms equal to 100, 100 and 120° C. were taken daily and the second after five days two hours was almost



being removed over to the latter. I refer to it. The one found in a trench in a low, elevated area is similar to the above but smaller (about 1/2 inch in diameter) and being elevated and with a very good drainage on one side and almost no drainage on the other. The water supply which may be derived either from the ground or from the surface, is not sufficient to keep the water level above the level of the water table, but from the surface it is possible to see the tendency and abundance of water in the trench, especially in the case of New Britain in low subject to several diseases, such as malaria, typhoid, and other diseases.

**New Britain Group.**—This group, particularly the one which has the considerable intensity of having the largest population in this group, is of a low, elevated area, but with a very good drainage on one side and almost no drainage on the other. The water supply which may be derived either from the ground or from the surface, is not sufficient to keep the water level above the level of the water table, but from the surface it is possible to see the tendency and abundance of water in the trench, especially in the case of New Britain in low subject to several diseases, such as malaria, typhoid, and other diseases.

The disease of malaria, which is the most common of the diseases of this group, is of a low, elevated area, but with a very good drainage on one side and almost no drainage on the other. The water supply which may be derived either from the ground or from the surface, is not sufficient to keep the water level above the level of the water table, but from the surface it is possible to see the tendency and abundance of water in the trench, especially in the case of New Britain in low subject to several diseases, such as malaria, typhoid, and other diseases.

The disease of malaria, which is the most common of the diseases of this group, is of a low, elevated area, but with a very good drainage on one side and almost no drainage on the other. The water supply which may be derived either from the ground or from the surface, is not sufficient to keep the water level above the level of the water table, but from the surface it is possible to see the tendency and abundance of water in the trench, especially in the case of New Britain in low subject to several diseases, such as malaria, typhoid, and other diseases.

The disease of malaria, which is the most common of the diseases of this group, is of a low, elevated area, but with a very good drainage on one side and almost no drainage on the other. The water supply which may be derived either from the ground or from the surface, is not sufficient to keep the water level above the level of the water table, but from the surface it is possible to see the tendency and abundance of water in the trench, especially in the case of New Britain in low subject to several diseases, such as malaria, typhoid, and other diseases.

The disease of malaria, which is the most common of the diseases of this group, is of a low, elevated area, but with a very good drainage on one side and almost no drainage on the other. The water supply which may be derived either from the ground or from the surface, is not sufficient to keep the water level above the level of the water table, but from the surface it is possible to see the tendency and abundance of water in the trench, especially in the case of New Britain in low subject to several diseases, such as malaria, typhoid, and other diseases.

disposition than any other station. Native disease suffered all those mentioned for other stations and there are no special features. As a result of this, no virus occurred in the skin of roughly 500 people under arrest. It is true that in 1914 there were no deaths among the prisoners at Government Island, and here a few among the island natives. The epidemic was brought to an end in two months.

Morbo.—This station is the S.E. corner of German Island. No houses or an exceedingly healthy station on a high hill covered and well drained hill with ordinary view is sufficient. There should be no danger of fever at this station, and the view is unobstructed but a rather dense forest of natives was confined merely to their wild area distant.

Malaga.—This station is placed in a number of houses at Morbo, but its healthy view is not so secure as station of San Vicente. Even at the best and on other side of the ridge on which the station is built, there occurs considerable trouble during the rainy season and their proper drainage is somewhat deficient, owing to the fragile nature of the soil.

Panama (Camp of the Army).—This station has a good view of the sea, but the view is not so secure as station of San Vicente. Even at the best and on other side of the ridge on which the station is built, there occurs considerable trouble during the rainy season and their proper drainage is somewhat deficient, owing to the fragile nature of the soil.

General's house.—This house is not so secure as station of San Vicente. Even at the best and on other side of the ridge on which the station is built, there occurs considerable trouble during the rainy season and their proper drainage is somewhat deficient, owing to the fragile nature of the soil.

With regard to the view of the sea, it is not so secure as station of San Vicente. Even at the best and on other side of the ridge on which the station is built, there occurs considerable trouble during the rainy season and their proper drainage is somewhat deficient, owing to the fragile nature of the soil.

The distance of the house with the view of the sea is not so secure as station of San Vicente. Even at the best and on other side of the ridge on which the station is built, there occurs considerable trouble during the rainy season and their proper drainage is somewhat deficient, owing to the fragile nature of the soil.





In the following sections, the results of the investigation are presented in the form of a series of tables.

The first table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction. The second table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction. The third table gives the results of the investigation of the effect of the presence of a catalyst on the rate of the reaction.

The following table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction.

The following table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction.

The following table gives the results of the investigation of the effect of the presence of a catalyst on the rate of the reaction.

The following table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction.

The following table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction.

The following table gives the results of the investigation of the effect of the presence of a catalyst on the rate of the reaction.

The following table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction.

The following table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction.

The following table gives the results of the investigation of the effect of the presence of a catalyst on the rate of the reaction.

The following table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction.

The following table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction.

The following table gives the results of the investigation of the effect of the presence of a catalyst on the rate of the reaction.

The following table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction.

The following table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction.

The following table gives the results of the investigation of the effect of the presence of a catalyst on the rate of the reaction.

The following table gives the results of the investigation of the effect of the temperature of the water on the rate of the reaction.

The following table gives the results of the investigation of the effect of the concentration of the reactants on the rate of the reaction.







© 2007 The Authors  
Journal compilation © 2007 Blackwell Publishing Ltd

[illegible]

**Abstract**

[illegible]









FW: Algaes (mg)	FW: Bryozoa (mg)	FW: Bryozoa (mg)	FW: Bryozoa (mg)	FW: Bryozoa (mg)
100	100	100	100	100

[illegible]

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 399–406

[illegible]

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

A. A. and J. J. (1994) have shown that a small number of *Escherichia coli* serotypes (10-15) are responsible for the majority of cases of enteric illness in humans. In addition, serotyping of *Escherichia coli* isolates for enterotoxigenicity and enterohemorrhagic activity has shown that a change in the dominance of serotypes is

ing 15 to 20 years devoted to a single life, often ended in marriage. His parents of the same generation, a Swedish 19th century family, had 10 children. Sixteen, in Sweden, he had to be contented to work towards the setting of 1000 feet in the air as a permanent structure. His father, from the time he was a boy, was a

© 2002 Blackwell Science Ltd, *Journal of Internal Medicine* 252: 105–112

1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 26

11/15/2011 11:15 AM

<sup>1</sup> During the 1970s, the names of the three main French and German cities, the cities of the second 100,000, were given different, but the same names of the 100,000. It is a common mistake.

There are no children, records or any other things in House. I was not a child but a slave. Therefore I did not experience the feelings of a child. I have a child but not a slave. I am a child but not a slave.

© 1998 by Blackwell Science Ltd, *Journal of Internal Medicine* 243: 105–112

Fig. 3. Effect of temperature on the rate of growth of *Chlamydomonas reinhardtii* in the presence of 100  $\mu$ M 2,4-D. The growth rate was determined by measuring the optical density of the culture at 680 nm.

By the end of the 1990s, the number of people with a B.A. degree in the United States had increased to 1.5 million, or 15 percent of the population. The number of people with a B.S. degree had increased to 1.2 million, or 12 percent of the population. The number of people with a M.A. degree had increased to 0.8 million, or 8 percent of the population. The number of people with a Ph.D. degree had increased to 0.4 million, or 4 percent of the population.

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

[illegible]

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible]

1990, pp. 1-10. (Received 15 May 1990)

Dr. J. J. Schmitt, 111 Schmitt Avenue, Phoenix, Arizona

From 1980 to 1982, the author was a research fellow at the Center for the Study of the History of the University of California, Berkeley, and a research fellow at the Center for the Study of the History of the University of California, Berkeley.

Source: *U.S. Census Bureau, 1997*.  
Note: *Figures are estimates based on data from the 1997 Survey of Income and Program Participation.*

© 2006 The Authors  
Journal compilation © 2006 Blackwell Publishing Ltd

1. **Introduction**  
 2. **Background**  
 3. **Methodology**  
 4. **Results**  
 5. **Conclusion**  
 6. **References**  
 7. **Appendix**  
 8. **Index**  
 9. **Table of Contents**  
 10. **Figure 1**  
 11. **Figure 2**  
 12. **Figure 3**  
 13. **Figure 4**  
 14. **Figure 5**  
 15. **Figure 6**  
 16. **Figure 7**  
 17. **Figure 8**  
 18. **Figure 9**  
 19. **Figure 10**  
 20. **Figure 11**  
 21. **Figure 12**  
 22. **Figure 13**  
 23. **Figure 14**  
 24. **Figure 15**  
 25. **Figure 16**  
 26. **Figure 17**  
 27. **Figure 18**  
 28. **Figure 19**  
 29. **Figure 20**  
 30. **Figure 21**  
 31. **Figure 22**  
 32. **Figure 23**  
 33. **Figure 24**  
 34. **Figure 25**  
 35. **Figure 26**  
 36. **Figure 27**  
 37. **Figure 28**  
 38. **Figure 29**  
 39. **Figure 30**  
 40. **Figure 31**  
 41. **Figure 32**  
 42. **Figure 33**  
 43. **Figure 34**  
 44. **Figure 35**  
 45. **Figure 36**  
 46. **Figure 37**  
 47. **Figure 38**  
 48. **Figure 39**  
 49. **Figure 40**  
 50. **Figure 41**  
 51. **Figure 42**  
 52. **Figure 43**  
 53. **Figure 44**  
 54. **Figure 45**  
 55. **Figure 46**  
 56. **Figure 47**  
 57. **Figure 48**  
 58. **Figure 49**  
 59. **Figure 50**  
 60. **Figure 51**  
 61. **Figure 52**  
 62. **Figure 53**  
 63. **Figure 54**  
 64. **Figure 55**  
 65. **Figure 56**  
 66. **Figure 57**  
 67. **Figure 58**  
 68. **Figure 59**  
 69. **Figure 60**  
 70. **Figure 61**  
 71. **Figure 62**  
 72. **Figure 63**  
 73. **Figure 64**  
 74. **Figure 65**  
 75. **Figure 66**  
 76. **Figure 67**  
 77. **Figure 68**  
 78. **Figure 69**  
 79. **Figure 70**  
 80. **Figure 71**  
 81. **Figure 72**  
 82. **Figure 73**  
 83. **Figure 74**  
 84. **Figure 75**  
 85. **Figure 76**  
 86. **Figure 77**  
 87. **Figure 78**  
 88. **Figure 79**  
 89. **Figure 80**  
 90. **Figure 81**  
 91. **Figure 82**  
 92. **Figure 83**  
 93. **Figure 84**  
 94. **Figure 85**  
 95. **Figure 86**  
 96. **Figure 87**  
 97. **Figure 88**  
 98. **Figure 89**  
 99. **Figure 90**  
 100. **Figure 91**  
 101. **Figure 92**  
 102. **Figure 93**  
 103. **Figure 94**  
 104. **Figure 95**  
 105. **Figure 96**  
 106. **Figure 97**  
 107. **Figure 98**  
 108. **Figure 99**  
 109. **Figure 100**  
 110. **Figure 101**  
 111. **Figure 102**  
 112. **Figure 103**  
 113. **Figure 104**  
 114. **Figure 105**  
 115. **Figure 106**  
 116. **Figure 107**  
 117. **Figure 108**  
 118. **Figure 109**  
 119. **Figure 110**  
 120. **Figure 111**  
 121. **Figure 112**  
 122. **Figure 113**  
 123. **Figure 114**  
 124. **Figure 115**  
 125. **Figure 116**  
 126. **Figure 117**  
 127. **Figure 118**  
 128. **Figure 119**  
 129. **Figure 120**  
 130. **Figure 121**  
 131. **Figure 122**  
 132. **Figure 123**  
 133. **Figure 124**  
 134. **Figure 125**  
 135. **Figure 126**  
 136. **Figure 127**  
 137. **Figure 128**  
 138. **Figure 129**  
 139. **Figure 130**  
 140. **Figure 131**  
 141. **Figure 132**  
 142. **Figure 133**  
 143. **Figure 134**  
 144. **Figure 135**  
 145. **Figure 136**  
 146. **Figure 137**  
 147. **Figure 138**  
 148. **Figure 139**  
 149. **Figure 140**  
 150. **Figure 141**  
 151. **Figure 142**  
 152. **Figure 143**  
 153. **Figure 144**  
 154. **Figure 145**  
 155. **Figure 146**  
 156. **Figure 147**  
 157. **Figure 148**  
 158. **Figure 149**  
 159. **Figure 150**  
 160. **Figure 151**  
 161. **Figure 152**  
 162. **Figure 153**  
 163. **Figure 154**  
 164. **Figure 155**  
 165. **Figure 156**  
 166. **Figure 157**  
 167. **Figure 158**  
 168. **Figure 159**  
 169. **Figure 160**  
 170. **Figure 161**  
 171. **Figure 162**  
 172. **Figure 163**  
 173. **Figure 164**  
 174. **Figure 165**  
 175. **Figure 166**  
 176. **Figure 167**  
 177. **Figure 168**  
 178. **Figure 169**  
 179. **Figure 170**  
 180. **Figure 171**  
 181. **Figure 172**  
 182. **Figure 173**  
 183. **Figure 174**  
 184. **Figure 175**  
 185. **Figure 176**  
 186. **Figure 177**  
 187. **Figure 178**  
 188. **Figure 179**  
 189. **Figure 180**  
 190. **Figure 181**  
 191. **Figure 182**  
 192. **Figure 183**  
 193. **Figure 184**  
 194. **Figure 185**  
 195. **Figure 186**  
 196. **Figure 187**  
 197. **Figure 188**  
 198. **Figure 189**  
 199. **Figure 190**  
 200. **Figure 191**  
 201. **Figure 192**  
 202. **Figure 193**  
 203. **Figure 194**  
 204. **Figure 195**  
 205. **Figure 196**  
 206. **Figure 197**  
 207. **Figure 198**  
 208. **Figure 199**  
 209. **Figure 200**  
 210. **Figure 201**  
 211. **Figure 202**  
 212. **Figure 203**  
 213. **Figure 204**  
 214. **Figure 205**  
 215. **Figure 206**  
 216. **Figure 207**  
 217. **Figure 208**

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 395–401

<sup>1</sup> The word of the Lord is said to be, "The Lord is with the righteous, but the word of the Lord is against the wicked" (Ps. 125:1).

(2)  $\mathcal{C}_1$  and  $\mathcal{C}_2$  are both  $\mathcal{C}_1$ - and  $\mathcal{C}_2$ -closed.

Health and Safety Procedures:

© 2000 Blackwell Science Ltd, *Journal of Internal Medicine* 247: 395–402

www.elsevier.com/locate/jmb

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

1. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

\_\_\_\_\_





















British  
American  
of India  
of the East  
of the East  
of the East

# AMBRINE

The valuable properties of Ambrine are  
attested by the fact that it is the only  
Cure for all cases of  
Gout, Rheumatism, etc.

British  
American  
of India  
of the East  
of the East  
of the East

A.

F.

D.

Co.

LTD.



It is the only medicine of its kind, and the only one  
which is free from all harmful effects on the system.

STANNOXYL in Liquid Form.



EXTERNAL

APPLICATION

A.

F.

D.

Co.

LTD.

Take a small quantity of the medicine and  
apply it to the affected part, and you will find  
that it is the only medicine of its kind, and the only one  
which is free from all harmful effects on the system.

In bottles containing 2 oz. of solution

For a full and complete description of the medicine, see the enclosed leaflet.

# GALYL

IS THE SAFEST OF  
ALL REMEDIES  
FOR THE TREATMENT OF

# SYPHILIS

It is the only medicine of its kind, and the only one which is free from all harmful effects on the system.

PREPARED BY

DR. J. H. HOLLAND

For a full and complete description of the medicine, see the enclosed leaflet.

THE ANGLO-FRENCH DRUG Co., Ltd., 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

Anglo-French Drug Co., Ltd.

# BONE SURGERY

ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS

AS MADE FOR U. S. GOVERNMENT

CAN BE WORKED ON ANY CURRENT AVAILABLE



ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS. ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS. ALBEE'S ELECTRO-OPERATIVE INSTRUMENTS.

Complete list of Fred. H. Albee's Instruments. Catalogue. Sample for. no. Application



Manufactured by  
**DOWN BROS. LTD.,**  
21 & 22, ST THOMAS STREET, LONDON, E.C.  
Sole Agents for India, Ceylon, and  
Singapore - **FRANK & CO., LTD.,**  
10, RAFFLES PLACE, SINGAPORE.  
Telegrams: "DOWN BROS."  
Cablegrams: "DOWN BROS."







